

# **Exhibit 1**

1                   UNITED STATES DISTRICT COURT  
2                   SOUTHERN DISTRICT OF TEXAS  
3                   HOUSTON DIVISION

4  
5       In re ANADARKO PETROLEUM                   ) Civil Action No.  
6       CORPORATION SECURITIES                       ) 4:20-cv-00576  
7       LITIGATION                                      )  
8                   ----- )  
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12      VIRTUAL VIDEOCONFERENCE VIDEO-RECORDED DEPOSITION OF  
13                   CARLOTTA CHERNOFF

14  
15                   Thursday, June 16, 2022  
16                   Remotely Testifying from Anchorage, Alaska  
17  
18  
19  
20  
21  
22  
23      Reported By:  
24      Hanna Kim, CLR, CSR No. 13083  
25      Job No. 5235607

1 Q. Were the -- any of the meetings or calls,  
2 to the best of your recollection, minuted?

3 A. I'm sorry, could you repeat that, please.

4 Q. Sure.

5 Were -- were minutes or notes taken of 09:11:53  
6 those meetings?

7 A. Oh. I don't know. I don't recall.

8 Q. Did ConocoPhillips keep notes of the  
9 various meetings?

10 A. No. We did not keep a formal meeting log. 09:12:18

11 Q. Who chaired partner meetings for the  
12 Shenandoah project?

13 A. So if the partner meeting was being hosted  
14 by the exploration team, then generally Ti- -- Tim  
15 Trautman chaired those meetings. If they were being 09:12:44  
16 hosted by the development team, then generally Pat  
17 McGrievy chaired those meetings.

18 Q. And do you recall approximately the time  
19 frame when it shifted from Tim to Pat?

20 A. So it was around the time that we were 09:13:06  
21 either drilling or finishing drilling the Shen 3.  
22 So it was for- -- they were transitioning again,  
23 forming the development team and transitioning the  
24 work around the time of the Shen 3 wells -- I recall  
25 correctly [verbatim]. 09:13:47

1 Q. What were the differences between being  
2 the operator of the project and being a partner? So  
3 in this instance, the difference between the role  
4 that Anadarko played in Shenandoah versus  
5 ConocoPhillips?

09:13:59

6 A. Could you clarify in -- in reference to  
7 what?

8 Q. Okay. So, for example, who among the  
9 partnership issued requests for funding?

10 A. So as operator, it was Anadarko's  
11 respons- -- responsibility to cost an activity and  
12 then issue requests for funding to the other  
13 nonoperated partners.

14 Q. Are those colloquially called AFE  
15 requests?

09:14:33

16 A. They are. Authority for funding -- or  
17 for -- sorry. Authority for expenditure.

18 Q. Maybe it's not colloquially, it's more of  
19 the acronym --

20 A. Yeah.

09:14:43

21 Q. -- which there might be many in your  
22 business.

23 A. That is correct.

24 Q. And did Anadarko as the -- the operator  
25 also have control over the direction of the project?

09:14:55

1           A. So they were responsible for proposing  
2 what path the project should take and -- and  
3 ensuring that the right work was being done in  
4 support of progressing the project down that path.

5           Q. And what was the mechanism by which the       09:15:12  
6 partners could express a disagreement with the  
7 proposed path?

8           A. So there were a number of mechanisms.  
9 Through partner meetings, we were able to respond to  
10 and -- and comment on their technical work and their     09:15:37  
11 representations of the direction they were taking  
12 the project. We were able to share our technical  
13 work. So ConocoPhillips independently did their own  
14 assessment, which was why we had a -- a full-time  
15 team committed to it. Likewise, the other partners     09:15:53  
16 had technical teams that were doing their own  
17 assessments, and they shared their views of the  
18 characterization of the opportunity and how they  
19 thought it should be developed.

20           ConocoPhillips could choose not to               09:16:07  
21 participate in an activity. So they could look --  
22 do -- do what is called nonconsent an AFE. And they  
23 had the opportunity to, you know, elevate to other  
24 levels of management and have discussions about, you  
25 know, what alternatives might be that -- that       09:16:25

1 Anadarko should be considering. So we -- we used  
2 several mechanisms which were communication at  
3 multiple levels, utilizing the existing structure of  
4 the partner meetings. And then we had available to  
5 us the possibility to nonconsent a request for 09:16:43  
6 expenditure.

7 Q. And through the course of your involvement  
8 in the Shenandoah project, did ConocoPhillips ever  
9 exercise its nonconsent to an AFE?

10 A. In -- in my recollection, I know that we 09:16:57  
11 nonconsented the sidetrack on the Shenandoah 4 well.

12 Q. So I'd like to pause there just for a  
13 moment to fill in some of the detail. So the  
14 nomenclature for the various wells with Shenandoah  
15 are -- are somewhat inconsistent in the record 09:17:22  
16 because there was a -- an initial exploration or  
17 discovery well that you referred to earlier; right?  
18 And that was --

19 A. That is correct.

20 Q. And that was referred to oftentimes as 09:17:35  
21 Shen 1?

22 A. I -- I think that after we moved into  
23 appraisal, yes, folks would -- would either call it  
24 the exploration well or Shen 1 or refer to it as its  
25 official name. And -- and I don't recall the 09:17:50

1 official name, but it would have had some  
2 relationship to the Walker Ridge block number that  
3 it was drilled in.

4 Q. And so it had various names accordingly.

5 And when you got to the first appraisal well, that 09:18:05  
6 was sometimes referred to as the Shen Appraisal 1  
7 well; correct?

8 A. Correct.

9 Q. But it was also referred to as Shen 2?

10 A. That is correct. 09:18:20

11 Q. And that was approximately in February of  
12 2013?

13 A. That is correct.

14 Q. Okay. And so you referred a little bit  
15 earlier, at the beginning, actually, to -- to 09:18:37  
16 Shen 3. And so Shen 3 could be referred to as  
17 either the Shenandoah Number 2 appraisal well or  
18 Shen 3; right?

19 A. Yes.

20 Q. Okay. And that was drilled in 09:18:54  
21 approximately November 2014?

22 A. I don't know the exact dates, but that  
23 sounds right.

24 Q. Okay. And then you just referred to a  
25 Shenandoah sidetrack. So there was -- after -- I'm 09:19:09

1 CERTIFICATE OF REPORTER

2 I, Hanna Kim, a Certified Shorthand  
3 Reporter, do hereby certify:

4 That prior to being examined, the witness  
5 in the foregoing proceedings was by me duly sworn to  
6 testify to the truth, the whole truth, and nothing  
7 but the truth;

8 That said proceedings were taken before me  
9 at the time and place therein set forth and were  
10 taken down by me in shorthand and thereafter  
11 transcribed into typewriting under my direction and  
12 supervision;

13 I further certify that I am neither  
14 counsel for, nor related to, any party to said  
15 proceedings, not in anywise interested in the  
16 outcome thereof.

17 Further, that if the foregoing pertains to  
18 the original transcript of a deposition in a federal  
19 case, before completion of the proceedings, review  
20 of the transcript [X] was [ ] was not requested.

21 In witness whereof, I have hereunto  
22 subscribed my name.

23 Dated: June 22, 2022



24 Hanna Kim

25 CLR, CSR No. 13083

## **Exhibit 2**

1                   UNITED STATES DISTRICT COURT  
2                   SOUTHERN DISTRICT OF TEXAS  
3                   HOUSTON DIVISION

4  
5       In re ANADARKO PETROLEUM                   ) Civil Action No.  
6       CORPORATION SECURITIES                       ) 4:20-cv-00576  
7       LITIGATION                                      )  
8                   ----- )  
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11  
12      VIRTUAL VIDEOCONFERENCE VIDEO-RECORDED DEPOSITION OF  
13                   CHARLES "CHIP" F. OUDIN, III  
14  
15                   Thursday, June 30, 2022  
16                   Remotely Testifying from The Woodlands, Texas  
17  
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23      Reported By:  
24      Hanna Kim, CLR, CSR No. 13083  
25      Job No. 5267938

1           Q. And to -- to ensure that everyone was  
2 getting the -- the data necessary to conduct the  
3 studies or to enable them to deliver the best  
4 possible results?

5           A. Yes.

6           Q. And the -- the data that's being  
7 referenced here, the necessary data, that would  
8 include both positive and negative information;  
9 right?

10          A. Yes.

11          Q. You also worked on generating the AFEs;  
12 right? We talked about that a little bit before.

13          A. For certain wells, yes.

14          Q. And for each well, the executive committee  
15 received updates as part of the AFE request;  
16 correct?

17          A. I don't really know what the executive  
18 committee received.

19          Q. For the ones that you were a part of, the  
20 AFE requests that you were a part of, I think you  
21 testified 5, 6, maybe 4.

22          A. Regarding updates, I -- again, I don't  
23 recall what they received. Regarding initial  
24 presentations, yes.

25          Q. What's the distinction that you're

1 drawing?

2 A. Your question, as I best recall, asked  
3 about updates. And I don't know what you mean by  
4 updates. I do know that presentations were made for  
5 the specific AFEs involved.

6 Q. And the AFEs that were involved were  
7 requesting more money; right?

8 A. Yes.

9 Q. And so as part of those requests for more  
10 funding, the executive committee was given updates  
11 on what had transpired to date on the prospect?

12 A. During the course of an AFE presentation,  
13 all prior operations would have been updated and  
14 presented to them, yes.

15 Q. You also worked with the Shenandoah  
16 partners; right?

17 A. Yes.

18 Q. And there were monthly meetings with the  
19 Shenandoah partners?

20 A. I don't recall the frequency, but there  
21 were plenty of meetings, yes.

22 Q. And those meetings were to review, among  
23 other things, maps of Shenandoah?

24 A. Among other things, yes.

25 Q. And what were the other things?

1           A. Facility progress, exploration planning on  
2 wells, regulatory issues, pretty much everything  
3 that went into the predevelopment story that was  
4 working.

5           Q. To understand the structures in the  
6 reservoirs?

7           A. That would have been part of it, yes.

8           Q. And to also understand the range of  
9 recoverable resource within the reservoirs?

10          A. That would eventually become part of it.  
11 I don't recall when the ranges started being  
12 discussed.

13          Q. What would be your best estimate? Would  
14 it be 2014?

15          A. I know in 2014, we had discussions  
16 internally about our ranges. I don't recall if we  
17 were sharing those ranges at that time with  
18 partners, again, because we, the predevelopment  
19 group, were not in charge of the project that year.

20          Q. But you did attend meetings that year?

21          A. Yes, I did.

22          Q. It says here on this document that part of  
23 this task for the partnership was to "maintain  
24 collaboration with partners."

25           Is that something that you did as part of

1 the development team?

2 A. Not in 2014.

3 Q. When did you get involved in terms of  
4 partner collaboration?

5 A. Probably around the time of the Shen 4  
6 well.

7 Q. So would it have been early 2015 or late  
8 2014?

9 A. Yes. I'm trying to remember what I would  
10 have said to whom when. But that would be about  
11 right, either late 2014, if we were planning Shen 4,  
12 but I want to say, more likely, 2015.

13 Q. And part of maintaining collaboration  
14 was -- with the partners was to have an open  
15 dialogue; right?

16 A. That would have been, yes.

17 Q. That was the goal; right?

18 A. Yes.

19 MS. JENSEN: Okay. We can take a quick  
20 break.

21 THE VIDEOGRAPHER: One moment. All right.

22 We are going off the record at 12:22 p.m.,  
23 and this is end of Media Unit Number 1.

24 (Short recess taken.)

25 THE VIDEOGRAPHER: We are back on the

1 record at 12:37 p.m. and this is the beginning of  
2 Media Unit Number 2.

3 Go ahead, please.

4 MS. JENSEN: Okay. We can pull up Tab 3.

5 THE WITNESS: Just got it.

6 (Oudin Deposition Exhibit 105 was marked  
7 electronically.)

8 BY MS. JENSEN:

9 Q. Great.

10 So do you see what we have marked as  
11 Exhibit 105.

12 MS. JENSEN: And for the record, this is  
13 APC '17024.

14 THE WITNESS: Yes, I see it.

15 BY MS. JENSEN:

16 Q. And do you recognize this document?

17 A. Not in this particular format. But, yes,  
18 I do.

19 Q. Okay. Do you have any reason to doubt  
20 that it is a true and accurate copy of your 2014  
21 employee performance review?

22 A. No reason to doubt.

23 Q. And this was filled out by both yourself  
24 and Pat McGrievy, who was your supervisor on the  
25 development team?

1 and what isn't significant..... Hope you all have a  
2 happy Thanksgiving."

3 Q. And Chandler -- Paul Chandler responds,  
4 "The smoking gun??"

5 And could you read your response into the  
6 record.

7 A. "Nah. Both versions were probably mapped  
8 in the past week, right??? Although if I really  
9 wanted to be a pain in the a--, I could find a  
10 date-stamp for those faults and determine when they  
11 were created."

12 Q. And so what are you describing here?

13 A. I'm describing previous, prior  
14 interpretation in the exploration dataset across  
15 Shenandoah where somebody had mapped faults.

16 Q. And that was a -- a surprise to you  
17 because they were still showing maps that didn't  
18 have the faults; right?

19 A. Correct.

20 MS. JENSEN: Okay. We can pull up the  
21 next tab.

22 THE WITNESS: Time out.

23 MS. JENSEN: Did it log you out again?

24 THE WITNESS: It logged me out. I -- I  
25 don't know whether -- what the --

1 MS. JENSEN: Okay.

2 THE WITNESS: Let's go off --

3 MS. JENSEN: Let's go off the record.

4 THE VIDEOGRAPHER: One second. Hang on.

5 All right. We're going off the record. The time is  
6 3:27 p.m. One moment.

7 (Off the record.)

8 THE VIDEOGRAPHER: All right. We're back  
9 on the record at 3:29 p.m. Go ahead, please.

10 BY MS. JENSEN:

11 Q. Okay. You should be able to see now what  
12 we've marked as Exhibit 118, which for the record,  
13 is APC-'148076.

14 (Oudin Deposition Exhibit 118 was marked  
15 electronically.)

16 BY MS. JENSEN:

17 Q. Have you seen this before?

18 A. No, I have not.

19 Q. And this is an e-mail string on  
20 November 26 -- actually going down to the bottom, it  
21 would -- it started November 25th, so November 25th  
22 and 26th of 2014, subject line, "Question on EC  
23 Meeting." And the e-mail correspondence includes  
24 Ernie Leyendecker, Tim Trautman, Jim Bryan, Jeff  
25 Pa- -- Pachman, Beth Kendall, Bob Strickling, Chris

Camden, and Jake Ramsey.

And do you understand this to be a -- an e-mail string that's discussing the location of the Shen 4 well?

A. I'll need some time to read it.

(Witness reviews.)

Okay. That would be the overall objective of the e-mail train, I believe.

Q. And so at this time, the discussion is the where to place the Shen 4 well?

A. Yes.

Q. And do you recall that there was a disagreement between the development team and the exploration team about where to place that well?

A. I don't recall disagreement. I do remember difference of opinion.

Q. And this is talking between Ernie Leyendecker and folks on the exploration team about the internal technical tension that existed between the exploration team and the development team at this point?

A. Part of it is, yes.

Q. And so is it your understanding that then Ernie Leyendecker looked at the various maps?

A. Rachel, by that, you're referring to the

1 last e-mail in the thread?

2 Q. So I'm actually talking -- there are  
3 several different references to it. I was actually  
4 looking at the Ernie Leyendecker e-mail 7:36,  
5 November 26th, in which he's saying that he had  
6 reviewed other maps, including COP. And was it your  
7 understanding that Ernie Leyendecker reviewed also  
8 the development team's maps?

9 MS. KAMIN: Objection.

10 THE WITNESS: I don't know.

11 BY MS. JENSEN:

12 Q. And was it your recollection that there  
13 were efforts to set up a joint meeting between  
14 exploration and development to discuss the  
15 disagreements or tensions that existed at that  
16 point?

17 A. Yes.

18 Q. With respect to the mapping?

19 A. Yes.

20 Q. And with respect to the location of Shen  
21 4?

22 A. If that was the impetus, then yes.

23 Q. So they were asking for a meeting, and  
24 Ernie Leyendecker's last e-mail, which I think the  
25 one you were looking at, now 4:37 p.m. states, 'We

1 are not likely to change the location."

2                   Do you see that?

3           A. I do.

4           Q. And so at this point, even prior to that  
5 meeting, he was stating that he was unlikely to  
6 change the location no matter the input of the  
7 development team?

8           A. I don't know or -- about the second half  
9 of your statement.

10          Q. But that he was unlikely to change the  
11 location, but he expressed that opinion before there  
12 was even a meeting?

13               MS. KAMIN: Objection.

14               THE WITNESS: He expresses that opinion in  
15 the last thread of that e-mail, yes.

16 BY MS. JENSEN:

17          Q. And he says "alternative maps."

18               Do you have any understanding as to what  
19 those alternative maps were?

20          A. I do not.

21               MS. JENSEN: Okay. Let's go ahead and  
22 pull up Tab 22.

23 BY MS. JENSEN:

24          Q. Hopefully you will not get kicked out of  
25 the system this time, and hopefully you can see what

1 CERTIFICATE OF REPORTER

2 I, Hanna Kim, a Certified Shorthand  
3 Reporter, do hereby certify:

4 That prior to being examined, the witness  
5 in the foregoing proceedings was by me duly sworn to  
6 testify to the truth, the whole truth, and nothing  
7 but the truth;

8 That said proceedings were taken before me  
9 at the time and place therein set forth and were  
10 taken down by me in shorthand and thereafter  
11 transcribed into typewriting under my direction and  
12 supervision;

13 I further certify that I am neither  
14 counsel for, nor related to, any party to said  
15 proceedings, not in anywise interested in the  
16 outcome thereof.

17 Further, that if the foregoing pertains to  
18 the original transcript of a deposition in a federal  
19 case, before completion of the proceedings, review  
20 of the transcript [x] was [ ] was not requested.

21 In witness whereof, I have hereunto  
22 subscribed my name. Dated: 7th day of JULY, 2022

23  
24  


25 Hanna Kim

CLR, CSR No. 13083

## **Exhibit 3**

1                   UNITED STATES DISTRICT COURT  
2                   SOUTHERN DISTRICT OF TEXAS  
3                   HOUSTON DIVISION

4  
5       In re ANADARKO PETROLEUM                   ) Civil Action No.  
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7       LITIGATION                                      )  
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12      VIRTUAL VIDEOCONFERENCE VIDEO-RECORDED DEPOSITION OF  
13    CHRIS CAMDEN  
14  
15   Thursday, July 14, 2022  
16   Remotely Testifying from The Woodlands, Texas  
17  
18  
19  
20  
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23      Stenographically Reported By:  
24      Hanna Kim, CLR, CSR No. 13083  
25      Job No. 5303669

1       then we have to have the units be a volume. So we  
2       have a -- a -- algorithms and processes to be able  
3       to estimate or calculate the -- the volume of oil in  
4       the rock. And we do it -- we describe it as barrels  
5       per acre-foot. So an acre in aerial extent and foot      17:00:26  
6       in thickness. That gives us a -- a way to calculate  
7       volumetrically how much oil's down there.

8           Q. And -- and so, was that something that you  
9       were in -- in charge of calculating? And by that I  
10       mean, the -- the thickness, for example?                          17:00:49

11           A. No. I was responsible for the more -- so  
12       in -- on this -- what we can see on the screen here,  
13       so third column of data, which is called primary  
14       recovery efficiency, that is a subset of the barrel  
15       per acre-foot that we're talking about. And so, I      17:01:11  
16       focused on the primary recovery efficiency column,  
17       probably, the others, too. But the petrophysicist  
18       would help us with the porosity and hydrocarbons  
19       saturation columns, the first two columns. So the  
20       main column I was putting in here was primary                    17:01:32  
21       recovery efficiency.

22           Q. Okay. So the -- the last paragraph of  
23       your e-mail here, it says, "I do have WIW wells in  
24       the Peep case." [As read]

25           What does -- what does that mean?                          17:02:08

1           A. So -- those are water injection wells, so  
2 I guess I repeated the wells. And that just was  
3 describing to Robert that I have included the cost  
4 of drilling water injection wells for pressure  
5 maintenance.

17:02:27

6           Q. Okay. And the -- so the cost of those  
7 wells is included in the PEEP software?

8           A. Correct.

9           Q. When it says, "The 24 wells I've quoted in  
10 the" -- "the" work -- "the spreadsheet is the number  
11 of OP's only" [as read], is -- what does "OP" mean? 17:02:48

12          A. Oil producers.

13          Q. Okay. So -- and had Robert asked you to  
14 take a look at the development team's MMRA?

15          A. I -- I don't remember who asked. Someone 17:03:10  
16 did.

17          Q. Do you recall in what context you were  
18 asked to look at the development numbers?

19          A. No, not specifically.

20          Q. Was it in one of the exploration team 17:03:37  
21 meetings?

22          A. I -- I don't remember.

23          Q. What was -- was it -- who decided to call  
24 RCT? Was that the development team?

25          A. I actually don't remember whose idea it 17:03:56

1 was. If -- if it was a -- a -- a group idea or an  
2 individual person, I don't remember.

3 Q. And -- and you don't recall who -- who the  
4 individual is?

5 A. No, I -- I -- I can't remember the genesis 17:04:14  
6 of the idea.

7 Q. Okay. Was it Pat McGrievy?

8 A. I -- I don't remember. I really don't.

9 Q. Was it -- was the genesis of it that the  
10 development team felt like they were getting 17:04:35  
11 pressure to increase their numbers?

12 A. Not -- no, I don't remember that at all.

13 Q. Did -- do you recall any discussions about  
14 why the RCT was getting involved at this point?

15 A. Well, as -- as you heard and you've seen 17:04:52  
16 on the documents, there was a difference of opinion  
17 on the volumes between what development was  
18 calculating and what exploration was calculating.

19 And the -- the RCT exists for that very  
20 reason, to -- to evaluate our methodologies and our 17:05:11  
21 assumptions and try to validate either one -- one  
22 group's work over the other or to suggest some  
23 additional ways to look at it.

24 So the minute we have -- we -- we realize  
25 we've got a difference in -- in either methodology 17:05:39

1 or the volumes, then we need to bring RCT in.

2 That's -- that's -- that's why they're there.

3 Q. Right.

4 But there had been a -- a difference in --

5 in the opinions of -- or there had been a difference 17:05:55  
6 in the resource range for development and the  
7 exploration team for quite a while by then?

8 A. Correct. But the -- one -- one -- one of  
9 the great catalysts for that is when you get a new  
10 well with new information, then both teams are going 17:06:10  
11 to evaluate that information.

12 Q. Right.

13 And so did you attend that RCT meeting  
14 that occurred after -- after the voice mail and then  
15 this e-mail that you sent to Robert Strickling? 17:06:25

16 A. You know, I don't have any memory of it,  
17 so I -- I can't say for sure that I did.

18 Q. Do you recall that as a result of that  
19 meeting there was a downward adjustment to the  
20 exploration resource range? 17:06:43

21 A. Not specifically, no, I don't remember  
22 that. I -- I don't remember the timing. I know  
23 that -- that we had numerous -- not just one or two,  
24 but numerous meetings where we were working through  
25 our evaluations. 17:07:09

1 Q. You mean with the RCT?

2 A. No, internal, in -- within development --  
3 or within exploration.

4 Q. Okay. So let's just stick with this RCT  
5 review, which was the subject of my question. 17:07:29

6 So as a result of that RCT review, there  
7 was a downward adjustment to the exploration  
8 resource range; right?

9 A. I don't --

10 MR. GRUENSTEIN: Objection. 17:07:45

11 THE WITNESS: -- remember.

12 BY MS. JENSEN:

13 Q. You can't recall, one way or the other?

14 A. I -- I can't recall.

15 Q. Okay. 17:07:58

16 MS. JENSEN: Let's go ahead and put up Tab  
17 39.

18 (Camden Deposition Exhibit 172 was marked  
19 electronically.)

20 THE WITNESS: Okay. I have it. 17:08:31

21 BY MS. JENSEN:

22 Q. Okay. We have marked as Exhibit 172 a  
23 document bears the Bates stamp APC-'220561.

24 Mr. Camden, do you recognize this  
25 document? 17:08:53

1 A. I do.

2 Q. Is this one of the documents that you  
3 reviewed in preparation for today?

4 A. I think so.

5 Q. And does this appear to be a true and 17:09:02  
6 accurate copy of an e-mail at the top that you  
7 exchanged with Chip Oudin on January 14, 2016, and  
8 e-mails below between yourself and folks from the  
9 exploration and development teams?

10 A. Yes, it is.

11 Q. Okay. And is the context of this e-mail a  
12 follow-up from the RCT review that occurred in  
13 January of 2016?

14 A. Yes.

15 Q. And does this -- and this is -- this is 17:09:41  
16 what you said in the aftermath of that meeting,  
17 "this" being the January 13th e-mail that you sent?

18 A. Yeah, I'm -- I'm just trying to verify,  
19 this was after that RCT meeting because I -- I  
20 don't -- I don't remember the -- the RCT meeting 17:10:11  
21 itself.

22 Q. And do you recall that as a result of that  
23 meeting there was an agreement on joint distribution  
24 with a mean of 425 MMBOE?

25 A. I don't remember that, but that's

17:10:31

1 CERTIFICATE OF REPORTER

2 I, Hanna Kim, a Certified Shorthand  
3 Reporter, do hereby certify:

4 That prior to being examined, the witness  
5 in the foregoing proceedings was by me duly sworn to  
6 testify to the truth, the whole truth, and nothing  
7 but the truth;

8 That said proceedings were taken before me  
9 at the time and place therein set forth remotely and  
10 were taken down by me in shorthand and thereafter  
11 transcribed into typewriting under my direction and  
12 supervision;

13 I further certify that I am neither  
14 counsel for, nor related to, any party to said  
15 proceedings, not in anywise interested in the  
16 outcome thereof.

17 Further, that if the foregoing pertains to  
18 the original transcript of a deposition in a federal  
19 case, before completion of the proceedings, review  
20 of the transcript [x] was [ ] was not requested.

21 In witness whereof, I have hereunto  
22 subscribed my name. Dated: 20TH day of JULY, 2022

23  
24  


25 Hanna Kim

CLR, CSR No. 13083

## **Exhibit 4**

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION

In re ANADARKO PETROLEUM )  
CORPORATION SECURITIES )Civil Action No.  
LITIGATION ) 4:20-cv-00576  
 )  
 )

CORRECTED TRANSCRIPT

VIDEOTAPED REMOTE DEPOSITION OF ROBERT STRICKLING

Deponent testifying from Owenton, Kentucky

Thursday, July 21, 2022

Volume I

Stenographically Reported By:

Melissa M. Villagran, RPR

CSR No. 12543

Job No. 5306719

PAGES 1 - 234

1 have to keep it on your books until you get  
2 production, and then you're going to have to  
3 depreciate it as a -- as you would any other capital  
4 investment.

5 Q And you said until you get production; is 12:55:08  
6 that right?

7 A Yes.

8 Q And you told me that you understood that Shen  
9 3 would not be a producing well, correct?

10 A Yes. Shen 3 would not be a producing well, 12:55:18  
11 unless it was successfully sidetracked to a  
12 different location. As it -- as it sat there, yes,  
13 it would not be a producing well.

14 Q Okay.

15 So when you -- when you tell me that you 12:55:31  
16 would capitalize until you got production, what do  
17 you -- what do you mean by that?

18 A Well, it's -- an individual well is part of  
19 an overall development. You don't -- you -- you --  
20 you capitalize your investments and then write them 12:55:46  
21 off against production, as opposed to just expensing  
22 everything as you spend it.

23 Q But you had the option to expense Shen 3,  
24 correct?

25 A I believe we could have, yes. 12:56:04

1 Q And you understand that when a well is a dry  
2 hole, it should be expensed, correct?

3 MS. ROSENBERG: Objection to form.

4 THE DEPONENT: I -- no. I understand that if  
5 a well is part of a dry prospect project, you 12:56:13  
6 expense it.

7 BY MR. DROSMAN:

8 Q In other words, if all of Shenandoah was dry,  
9 then you would have to expense --

10 A Yes. 12:56:25

11 Q -- Shen 3; is that right?

12 A Because you have nothing -- you would have  
13 nothing to depreciate it against.

14 Q Okay.

15 But because there were other wells in 12:56:31  
16 Shenandoah that had oil, you didn't believe you  
17 needed to capitalize Shen 3, despite the fact that  
18 it would not be a producing well, correct?

19 A Because it was potentially part of an overall  
20 development, that's correct, we didn't expense that 12:56:45  
21 particular well bore.

22 Q And that was the basis that the three of you  
23 decided not to expense Shen 3; is that correct?

24 MS. ROSENBERG: Objection to form.

25 THE DEPONENT: Again, I'll go back to our -- 12:56:55

1       our accounting person recommended that we capitalize  
2       it because it's a successful appraisal well, and we  
3       agreed.

4       BY MR. DROSMAN:

5       Q      When you say "it was a successful appraisal           12:57:10  
6       well," what do you mean by that?

7       A      I mean we drilled a well, and it showed us  
8       that we had down-dip sands and lateral continuity.  
9       Helped us define the field.

10      Q      But you knew that Shen 3 wouldn't be a           12:57:24  
11       producing well, right?

12      A      As it stands today, Shen -- as it was --  
13       sorry. As it was -- at that point, without some  
14       sort of additional drilling, yes, it would not be a  
15       producing well.   12:57:37

16      Q      Okay.

17           Does it comply with accounting standards to  
18       capitalize a well when it's a dry hole, despite the  
19       fact that it's in a field that otherwise may produce  
20       oil?   12:57:51

21           MS. ROSENBERG: Objection to form.

22           THE DEPONENT: I'm not an accountant, and I  
23       can't answer that, but yes, I assume our accountant  
24       would know that.

25           MR. DROSMAN: Why don't we turn to what I'll           12:58:05

1 mark as Plaintiff's Exhibit 11 for identification.

2 (Exhibit 181 was marked for  
3 identification and is attached  
4 hereto.)

5 BY MR. DROSMAN:

12:58:40

6 Q Okay.

7 You can go ahead and refresh your browser,  
8 and you should have Plaintiff's Exhibit 181 in front  
9 of you.

10 MR. DROSMAN: And while you're looking at

12:58:45

11 Plaintiff's Exhibit 181, I'm just going to note for  
12 the record that it is a two-page e-mail string  
13 bearing Bates numbers APC-401795 to 1796.

14 BY MR. DROSMAN:

15 Q And just let me know when you've had a chance  
16 to review Plaintiff's Exhibit 182 -- or 181. I  
17 apologize.

12:59:03

18 Have you had a chance to review the document?

19 A I have.

20 Q Okay.

12:59:43

21 Do you recognize this particular e-mail  
22 string?

23 A No, I don't. I mean, I don't remember it.

24 Q Do you see that the e-mail second to the top  
25 is from Jeff Pachman?

12:59:59

1 A Yes.

2 Q And it's dated January 7, 2015, correct?

3 A Yes.

4 Q And it's to you, Diane Sease, Pat McGrievy,  
5 and Tim Trautman, right? 01:00:11

6 A Correct.

7 Q And the subject is "FW," forward, "Shenandoah  
8 WR52 #2 Accounting."

9 Do you see that?

10 A Yes.

11 Q And it looks like the e-mail from Pat  
12 McGrievy below that is the same e-mail that we saw  
13 in Plaintiff's Exhibit 180.

14 Do you see that?

15 A Yes, I do.

16 Q Okay.

17 But the text from Mr. Pachman is new to this  
18 particular exhibit, correct?

19 A Correct.

20 Q And Mr. Pachman wrote to you and others (as  
21 read): 01:00:39

22 "FYI.

23 "Spoke with my counterpart this  
24 morning about a few things at  
25 Shenandoah and just wanted to pass 01:00:50

1 MR. DROSMAN: You know what, you're right. I  
2 apologize. Let me -- let me show you -- why don't  
3 we table Exhibit 182, and I'll show you Exhibit 183  
4 instead, which I think -- believe is what I just  
5 introduced or just discussed.

01:06:41

6 (Exhibit 183 was marked for  
7 identification and is attached  
8 hereto.)

9 MR. DROSMAN: Okay.

10 Plaintiff's Exhibit 183 consists of the  
11 e-mail and PowerPoint presentation attachment that I  
12 just read the Bates numbers for.

13 BY MR. DROSMAN:

14 Q And let me know if you recognize this  
15 particular e-mail and attachment.

01:07:16

16 Have you had a chance to review the document,  
17 Mr. Strickling?

18 A I'm doing it right at the moment.

19 Q Okay.

20 Just let me know when you are through.

01:08:32

21 A Okay.

22 Q Okay.

23 Do you recognize this e-mail and attachment?

24 A This specific e-mail, probably not, but the  
25 topic, yes.

01:09:55

1 Q Okay.

2 Do you understand that you received this  
3 e-mail; is that correct?

4 A Yes.

5 Q On or about February 18, 2014, right? 01:10:01

6 A That's correct.

7 Q And you received it from Lea Frye; is that  
8 correct?

9 A Yes.

10 Q And the subject was "2014-02\_Kleckner\_rev 01:10:09  
11 1.ppts," correct?

12 A Yes.

13 Q Which is really just the title of the  
14 PowerPoint document that's attached, correct?

15 A Correct. 01:10:23

16 Q And this is a PowerPoint document for  
17 presentation to Mr. Kleckner; is that right?

18 A Yes.

19 Q Okay.

20 Is this a true and accurate copy of the 01:10:32  
21 e-mail and attachment that you received on or about  
22 February 18, 2014 from Ms. Frye?

23 A I don't know, because it's missing parts, but  
24 it could have been a preliminary one.

25 Q I'll represent to you that this was how your 01:10:51

1           counsel produced this e-mail and attachment to us.

2           A    Okay.

3           Q    Is there any reason to believe that it is not  
4           a true and accurate copy?

5           A    No.

01:11:08

6           Q    And Ms. Frye, who is she?

7           A    She would have been the reservoir engineer in  
8           development or producing department assigned to  
9           Shenandoah.

10          Q    Okay.

01:11:27

11                 And development is distinct from exploration,  
12           correct?

13          A    Yes.

14          Q    What's the difference between the two?

15          A    We answer to two different management           01:11:37  
16                 structures. We're focused on finding new places to  
17           drill, new prospects, new basins to open up.

18                 And development is focused on actually  
19           putting in developments and producing oil for gas.

20          Q    And did you understand to whom Ms. Frye           01:11:53  
21           reported?

22          A    Yes. She reports to development.

23                 I use development and producing  
24           interchangeably, by the way.

25          Q    Okay.

01:12:07

1 Is development also called deterministic?

2 A Is development also called deterministic?

3 Q Correct.

4 A I don't understand the question. Is

5 development called deterministic? 01:12:17

6 Q Yeah. Go ahead and turn to page 8 of the  
7 presentation, the attachment.

8 A Okay.

9 Q Are you on that page?

10 And do you see it says, "Deterministic Case 01:12:40  
11 Assumptions" on that page?

12 A Yes.

13 Q And that refers to development's case  
14 assumptions, correct?

15 MS. ROSENBERG: Objection to form. 01:12:51

16 THE DEPONENT: In the context here, yeah, I  
17 believe so.

18 BY MR. DROSMAN:

19 Q Let's turn back to the first page of the  
20 document, Plaintiff's Exhibit 182 -- 183. And it 01:12:59  
21 reads (as read):

22 "Changed to the \$95 pricing and  
23 will let you know what Darrell is  
24 thinking tomorrow after we show him  
25 our assumptions. If he wants to show 01:13:13

1                   the exploration economics, I will make  
2                   sure we have you and Blakeley at the  
3                   meeting."

4 Do you see that?

5 A Yes. 01:13:20

6 Q And you understand that "Darrell" refers to  
7 Darrell Holleck, right?

8 A That's correct.

9 Q And he was the senior V.P. of deepwater  
10 America operations, correct? 01:13:30

11           A Senior V.P. at this point? I'm not sure. Or  
12       if he -- no, I believe he answered to Kleckner. I  
13       don't --

14 Q And Mr. Kleckner was --

15 A I don't know if he was the senior V.P. at 01:13:46  
16 this point or not.

17 Q Okay.

18                   And you said he reported to Mr. Kleckner; is  
19                   that right?

20 A Well, again, I -- I'm not certain when the 01:13:56  
21 changes took place, but I'm -- I'm thinking that  
22 Holleck wasn't senior V.P. at this point.

Q Was Mr. Holleck on the executive committee?

24 A He wouldn't have been if he wasn't the senior  
25 V.P. at this point.

1           We are back on the record at 1:56 p.m., and  
2       this is the beginning of Media Unit No. 2.

3           Go ahead, please.

4 BY MR. DROSMAN:

5 Q       Mr. Strickling, before we broke, we were           01:56:50  
6       talking about the different sets of economics for  
7       Shenandoah for development versus exploration.

8           Do you recall that?

9 A       Yes.

10 Q       Okay.   01:57:05

11           And you didn't want to show two different  
12       sets of economics for Shenandoah, correct?

13 A       That -- that's correct.

14 Q       Okay.

15           Why is that?   01:57:13

16 A       Because that would just be confusing for  
17       anyone watching the -- watching the presentation.

18 Q       And so what was your suggestion with respect  
19       to showing a single set?

20 A       Well, I would assume we would have gone with   01:57:32  
21       our economics, but I believe development went with  
22       their own on this particular presentation.

23 Q       In other words, you would assume that  
24       exploration's economics would have been shown to  
25       Mr. Kleckner and Mr. Holleck?                           01:57:54

1           A    Yes. And they could have -- and development  
2         could have run a -- a sensitivity on it or said,  
3         here's something that we're looking at, but they  
4         would have had to frame it as a -- just a -- just a  
5         scoping study.

01:58:08

6           Q    Why did --

7           A    Because it's still an exploration prospect at  
8         this time.

9           Q    Why did you want to show exploration's  
10        economics for Shenandoah over development's?

01:58:17

11          A    Because it's an exploration project, it  
12         hasn't been turned over to development at the  
13         moment, and we -- we do exploration resource  
14         economics, and they tend to focus on reserves,  
15         SEC-mandated reserves.

01:58:35

16          Q    When was the project turned over -- the  
17         Shenandoah project turned over to development?

18          A    I don't think it was ever officially turned  
19         over to development. That's why we were still  
20         drilling appraisal lines.

01:58:52

21               It's our job to help define -- or it's our  
22         job in exploration to define the size of the field.

23          Q    And did you --

24          A    And development comes -- comes in early to  
25         get a heads-up so they know what's coming to them

01:59:03

1 later on.

2 Q Okay.

3 So throughout 2014, I take it, that you  
4 believed that exploration's economics for Shenandoah  
5 were more accurate than development's; is that fair? 01:59:17

6 A More accurate, no. Just different. Ours  
7 took the full range of resources, and they tended to  
8 focus on what they could quantify as a reserve.

9 Q You told me that you thought it made sense to  
10 show Mr. Kleckner and Mr. Holleck exploration's 01:59:33  
11 economics for Shenandoah rather than development's,  
12 right?

13 A I would have assumed we would have shown  
14 ours, and ours should have been the official  
15 economics until it was turned over to development. 01:59:52

16 Because in -- in an -- in an ideal case, we  
17 would work with development. Things that they knew  
18 more about, like costing out an exact platform, they  
19 would pass the data back to us.

20 But to do a complete distribution of what the 02:00:08  
21 prospect might mean, that's -- that's still in  
22 exploration's purview.

23 Q So it would make sense to show management  
24 exploration's numbers and not development's; is that  
25 fair? 02:00:24

1 A Right, at this point, yes.

2 Q Okay.

3 And throughout 2014, would that -- would that  
4 have made sense?

5 MS. ROSENBERG: Objection to form.

02:00:28

6 THE DEPONENT: It would just depend on as the  
7 data becomes available, the two numbers should  
8 actually collapse together, based on how much oil we  
9 think we found.

10 BY MR. DROSMAN:

02:00:42

11 Q And if they don't collapse together, what's  
12 the solution?

13 A We need more data.

14 Q Whose numbers do you go with?

15 A If we haven't turned it over to development  
16 yet, it would be ours.

02:00:50

17 Q And you told me that you didn't turn it over  
18 to development, at least during 2014, correct?

19 A Yes. Development was involved, but it was  
20 still in our shop, because we were still drilling  
21 exploration wells -- I mean, sorry, appraisal wells.

02:01:08

22 (Exhibit 184 was marked for

23 identification and is attached  
24 hereto.)

25 ///

02:01:20

1 BY MR. DROSMAN:

2 Q Okay.

3 I'm going to show you what has been marked as  
4 Plaintiff's Exhibit 184 for identification. And  
5 that should be up on -- in your browser now, if you 02:01:30  
6 want to refresh it.

7 MR. DROSMAN: And for the record, Plaintiff's  
8 Exhibit 184 consists of a single-page e-mail bearing  
9 Bates No. APC-00609741.

10 BY MR. DROSMAN:

02:01:46

11 Q And just let me know when you've had a chance  
12 to take a look at it.

13 A Okay.

14 Q Do you recognize this e-mail?

15 A Yes.

02:02:28

16 Q Why do you recognize it?

17 A Why? Just it was -- that meeting was rather  
18 important, because it came back that -- that they  
19 had shown a very different number than we had shown.

20 Q When you say "that meeting," what are you 02:02:48  
21 referring to?

22 A The one where they went over it with  
23 Kleckner.

24 Q And when you say "the one they went over,"  
25 who -- who's "they" in that sentence? 02:02:57

1                   I, the undersigned, a Certified Shorthand  
2 Reporter of the State of California, Registered  
3 Professional Reporter, Certified Live Note Reporter,  
4 do hereby certify:

5                   That the foregoing proceedings were taken  
6 before me at the time and place herein set forth;  
7 that any witnesses in the foregoing proceedings,  
8 prior to testifying, were duly sworn; that a record  
9 of the proceedings was made by me using machine  
10 shorthand which was thereafter transcribed under my  
11 direction; that the foregoing transcript is a true  
12 record of the testimony given.

13                  Further, that if the foregoing pertains to  
14 the original transcript of a deposition in a Federal  
15 Case, before completion of the proceedings, review  
16 of the transcript [ ] was [ X ] was not requested.

17                  I further certify I am neither financially  
18 interested in the action nor a relative or employee  
19 of any attorney or party to this action.

20                  IN WITNESS WHEREOF, I have this date  
21 subscribed my name. Dated: July 25, 2022

22  
23  
24                    
25

MELISSA M. VILLAGRAN

CSR No. 12543 RPR

## **Exhibit 5**

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION

In re ANADARKO PETROLEUM )  
CORPORATION SECURITIES ) Civil Action No.  
LITIGATION ) 4:20-cv-00576  
 )  
 )

VIDEOTAPED REMOTE DEPOSITION OF PAUL CHANDLER  
Deponent testifying from Woodlands, Texas  
Thursday, July 28, 2022

Volume I

Stenographically Reported By:  
Melissa M. Villagran, RPR  
CSR No. 12543  
Job No. 5316125  
PAGES 1 - 282

1 Q Now, on the exploration team, you worked with  
2 Beth Kendall, right?

3 A Beth Kendall was the geophysicist on the  
4 exploration team. I had communication with her on  
5 occasion, but I wouldn't say I worked regularly with 10:58:27  
6 Beth Kendall, no.

7 Q Okay.

8 Do you recall the names of the geologists you  
9 communicated with regularly?

10 A My counterpart on the exploration team was 10:58:38  
11 Jake Ramsey.

12 Q And what about Breck Johnson?

13 A Breck came into the group later at a  
14 different point in the project and, yes, he  
15 was -- he was my counterpart in the -- I would say 10:58:57  
16 in the later -- the later time period that we worked  
17 on Shenandoah.

18 Q And you communicated with them -- you  
19 communicated with them, correct?

20 A On occasion. 10:59:16

21 Q You compared maps with them?

22 A On occasion, we did.

23 Q You compared the data you were seeing?

24 A On occasion, we did.

25 Q When you say "on occasion," do you mean 10:59:32

1 daily?

2 A No.

3 Q Weekly?

4 A No. There was no particular timeframe  
5 when -- when we had additional data, log data, core 10:59:47  
6 data, it would not be unusual for us at some point  
7 after that to compare how we interpreted that data.  
8 It might be a couple of times a week or it might be  
9 much further apart than that. It would just depend  
10 on the circumstance and whether or not we had 11:00:09  
11 something new to talk about.

12 Q Each time a well was being drilled, you would  
13 compare log data?

14 A To a degree, yes, we would.

15 Q You would compare core data? 11:00:22

16 A On the wells that we cored, yes, we would  
17 talk about the core data that we got and discuss it.

18 Yes, we would.

19 Q Okay.

20 So each time a well was drilled, you would do 11:00:34  
21 those things?

22 A Yes.

23 Q And before a well was drilled, you discussed  
24 locations, right?

25 A We had discussions, yes. 11:00:46

1 Q You had discussions around the potential  
2 locations of wells, correct?

3 A We had discussions about locations.  
4 Exploration was -- as I had mentioned, was charged  
5 with the project up and through the Shenandoah 3 11:01:10  
6 well. So they would basically pick the locations  
7 for the additional wells. We would have discussions  
8 about it, but it was ultimately their -- their  
9 charge to do that.

10 Q And in those discussions, you put forth your 11:01:30  
11 understanding of the location?

12 A I would discuss -- our team would discuss our  
13 opinions about those locations, yes. From a  
14 technical standpoint.

15 Q You would discuss what you were seeing 11:01:53  
16 technically --

17 A That's correct.

18 Q -- about those locations?

19 A That's correct.

20 Q All right. 11:01:59

21 Now, also on the exploration team, you would  
22 interact with Tim Trautman?

23 A No. I would say -- I would say not. I know  
24 Tim, and I knew he was the manager of the  
25 exploration group, but my interaction was not with 11:02:18

1 Tim. It was with my counterparts that we had  
2 already mentioned, Jake and Breck, and to some  
3 degree, Beth Kendall.

4 Q Okay.

5 Now, there were also partners in the project? 11:02:34

6 A There were.

7 Q Marathon, Venari, Cobalt, and ConocoPhillips  
8 were on the project?

9 A At various times, yes.

10 Q Do you recall communicating with geologist 11:02:47  
11 counterparts of those companies?

12 A I don't recall any specifics on that.

13 Although, if I would get a call from a geologist  
14 from one of those companies, then -- and they ask a  
15 question that I could answer, I would talk to them 11:03:06  
16 about it, yes.

17 Q Now, would you attend meetings with  
18 partnerships?

19 A I attended meetings with the partners with  
20 our development counterparts with those companies. 11:03:24

21 Q Did you attend meetings with partners that  
22 were joint exploration and development?

23 A No. Exploration would have a partner meeting  
24 with their exploration counterparts, and I typically  
25 would not join that. 11:03:48

1 Q Are you a note taker, Mr. Chandler?

2 A What do you mean?

3 Q You see me scribbling notes while we are  
4 talking. Do you take notes in these meeting?

5 A Typically -- typically not or very few. Most 11:04:10  
6 of my notes were regarding names, positions, so that  
7 if I needed to talk to these people again, I  
8 could -- I could do so.

9 Q You wrote down the names and positions of  
10 people so that you could talk to them again? 11:04:23

11 A Just to help me remember who they were.  
12 Oftentimes, people's positions would change to other  
13 companies. People would move in. People would move  
14 out. That sort of thing made the basis of the bulk  
15 of the notes that I took. 11:04:42

16 Q So you took notes on the partners that you  
17 wanted to speak to again?

18 A Mostly I just took notes to know who they  
19 were. I didn't know if I would ever speak to them  
20 again or not. But I just wanted to know who the 11:04:53  
21 geologists were that I might talk to or who the  
22 engineers were that I might run into at some point.  
23 So I would remember their name and who they were.

24 Q Okay.

25 And you did that because you were expecting 11:05:06

1                   I, the undersigned, a Certified Shorthand  
2 Reporter of the State of California, Registered  
3 Professional Reporter, Certified Live Note Reporter,  
4 do hereby certify:

5                   That the foregoing proceedings were taken  
6 before me at the time and place herein set forth;  
7 that any witnesses in the foregoing proceedings,  
8 prior to testifying, were duly sworn; that a record  
9 of the proceedings was made by me using machine  
10 shorthand which was thereafter transcribed under my  
11 direction; that the foregoing transcript is a true  
12 record of the testimony given.

13                  Further, that if the foregoing pertains to  
14 the original transcript of a deposition in a Federal  
15 Case, before completion of the proceedings, review  
16 of the transcript [ ] was [ X ] was not requested.

17                  I further certify I am neither financially  
18 interested in the action nor a relative or employee  
19 of any attorney or party to this action.

20                  IN WITNESS WHEREOF, I have this date  
21 subscribed my name.

23                  Dated: August 2, 2022



24                  MELISSA M. VILLAGRAN

25                  CSR No. 12543 RPR

## **Exhibit 6**

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION

In re ANADARKO PETROLEUM ) Civil Action No.  
CORPORATION SECURITIES ) 4:20-cv-00576  
LITIGATION )  
===== )

VIRTUAL VIDEOCONFERENCE VIDEO-RECORDED DEPOSITION OF  
PATRICK McGRIEVY

Wednesday, August 24, 2022

## Remotely Testifying from Houston, Texas

Stenographically Reported By:

Hanna Kim, CLR, CSR No. 13083

Job No. 5344464

1 pre- " -- "would anticipate that our spending pace  
2 will change." [As read]

3 Q. Okay. Thank you.

4 A. Mm-hmm.

5 Q. So your reference there to the barrels in 16:33:52  
6 place, that referred to the gross barrels?

7 A. That's correct.

8 Q. As -- as opposed to -- so that's the  
9 amount of oil that you think is in the ground as  
10 opposed to what you can retrieve; right? 16:34:07

11 A. That's correct.

12 Q. And so, the results of Shen 4 were a loss  
13 of, essentially, one-third of the projected oil;  
14 right?

15 A. Yes, about a billion barrels, almost a 16:34:20  
16 billion barrels.

17 Q. And you wanted Mike and Jennie to keep a  
18 tight lid on these results because it was a  
19 negative imp- -- -- a negative outcome; right?

20 A. It was in the negative outcome, but it was 16:34:37  
21 also preliminary data that we were using, so I don't  
22 like information to get out that's its preliminary.  
23 I just don't want them to start thinking about what  
24 they need -- need to do next.

25 Q. And, in fact, the -- the TD was in salt; 16:34:52

1 right?

2 A. Yes, it was.

3 Q. And that was a negative piece of  
4 information; right?

5 A. It certainly wasn't positive, yeah. 16:35:00

6 Q. And -- and you say here this is a negative  
7 piece of information?

8 A. Right.

9 Q. And so, you were worried about word  
10 getting out to the partners? 16:35:14

11 A. I was -- no, I think it was more so  
12 worried about just being preliminary information and  
13 things can get twisted, e-mails sent around. And I  
14 prefer to make sure we have a concrete estimate  
15 before we actually go out with numbers like this,  
16 because it was disappointing. 16:35:33

17 Q. And -- and that --

18 A. And it would just -- and that would  
19 include our -- our partners as well.

20 I'm sorry. 16:35:40

21 Q. Okay. And, in fact, given that the  
22 results were that it drilled into salt, it did have  
23 a profound view on how Shenandoah was viewed going  
24 forward, didn't it?

25 A. From what -- who's perspective? 16:35:54

1 Q. From the company's perspective.

2 A. Okay.

3 Yes, I -- I assume that it did, yes.

4 Q. And it continued to cast serious doubt on  
5 the commerciality of Shenandoah; right? 16:36:13

6 MR. GRUENSTEIN: Objection.

7 THE WITNESS: It was -- it was a  
8 disappointing result.

9 BY MS. JENSEN:

10 Q. And it was the loss of one-third of the 16:36:23  
11 resource range, at least preliminary?

12 A. That's -- that's accurate.

13 Q. So Lea responds to this e-mail, and in her  
14 e-mail -- I'm sorry.

15 So the -- the sequence of events is that 16:36:43  
16 Jennie forwards this to Lea. E-mails are like that.  
17 And Lea responds to Jennie. And in her e-mail, she  
18 says, "Think about exit strategy and what that looks  
19 like." [As read]

20 (Interruption in audio/video.) 16:37:05

21 THE COURT REPORTER: One second, please.

22 BY MS. JENSEN:

23 Q. About this time, there was internal  
24 thinking on an exit strategy and what that would  
25 look like with respect to the Shenandoah prospect; 16:37:15

1 right?

2 A. Yes. Looking at other options, I  
3 would say -- I would say that exit strategy might be  
4 a little harsh. I think it was looking at other  
5 potential options. It was an optionality exercise. 16:37:32

6 Q. And Lea's words were "exit strategy";  
7 right?

8 A. You can call it that. You can call it  
9 an -- an optionality exercise too, looking at other  
10 options. 16:37:42

11 Q. Sure. But that's what her e-mail said,  
12 was "exit strategy"?

13 A. Yes, that's what she -- the way she termed  
14 it.

15 Q. Okay. And also was contemplating what we 16:37:49  
16 may -- might be prepared to show Bob and -- and Jim.  
17 And what's your understanding of who Bob and Jim are  
18 in this context?

19 A. Probably Bob Daniels and Jim Kleckner,  
20 that would be my -- certainly Jim Kleckner and maybe 16:38:08  
21 Bob Daniels, I would suspect.

22 Q. And was there, in fact, a presentation  
23 after this to Bob and Jim about what exit strategies  
24 might look like?

25 A. Yes, I do recall one. Yeah. 16:38:18

1 Q. And was it also presented to the executive  
2 committee?

3 A. I don't recall whether we pro- -- prod- --  
4 produced it to them or not. It's -- but I'm certain  
5 we gave it to Jim Kleckner.

16:38:34

6 Q. And you would expect for Jim Kleckner to  
7 advise the executive committee that there was a -- a  
8 contemplation of an exit strategy at this point?

9 A. An optionality strategy. I like to call  
10 it that. I would hope so, yes.

16:38:52

11 Q. It's functionally the same thing?

12 A. It's not.

13 Q. Okay. Well, exit strategy was the  
14 verbiage here.

15 After Shen 4, the development team  
16 presented on the Shenandoah prospect to the  
17 executive committee; right?

16:39:01

18 A. Probably so, yes.

19 Q. And after the results of Shen 4, the  
20 executive committee lost interest in developing  
21 Shenandoah as an operator; right?

16:39:25

22 A. What time frame was that? Can you --

23 Q. Post Shen 4, early 20- -- 2016.

24 A. Yeah, there was -- there was talk about  
25 it, right.

16:39:42

1 Q. And the CEO, Al Walker, didn't want to  
2 continue to develop Shenandoah as an operator after  
3 Shen 4; right?

4 A. I thought it was later than that, but, you  
5 know, I -- I would call it being later than 2015, 16:40:05  
6 but maybe I'm wrong. But I -- I -- it's going to --

7 Q. Or early -- or early 2016?

8 A. Okay. Probably so, yeah.

9 Q. Just returning to optionality. An  
10 optionality study would include an exit strategy; 16:40:20  
11 right?

12 A. Yes, it would.

13 Q. Okay. Do you recall after Shenandoah 4,  
14 you coordinated an RCT review of Shenandoah?

15 A. I didn't coordinate it. I suggested it be 16:40:38  
16 done.

17 Q. Okay.

18 A. Yeah, I didn't coordinate it.

19 Q. All right.

20 Who coordinated it? 16:40:45

21 A. It would have been the RCT leader, which I  
22 think was Matt. I don't recall his last name, but  
23 he was actually the RCT manager. But I suggested it  
24 be done between exploration and development.

25 Q. Was it Matt Morris? 16:41:02

1 because we didn't -- we did not develop those maps.

2 Q. Okay. You were asked a question where  
3 Ms. Jen- -- Ms. Jensen referred to the unfaulted  
4 maps that were ethically questionable.

5 Were you saying that the maps themselves 18:46:57  
6 were question- -- ethically questionable for  
7 exploration to present or just for you to present  
8 them, since you didn't actually prepare them?

9 MS. JENSEN: Objection. Leading.

10 Compound. And asked and answered. 18:47:07

11 THE WITNESS: What I was suggesting was  
12 that it wasn't good for me to support them because  
13 they were not the development maps. The exploration  
14 team should be presenting their own information,  
15 their own data. 18:47:23

16 BY MR. GRUENSTEIN:

17 Q. So as to address the objection that  
18 Ms. Jensen had, I'll -- I'll just ask the question  
19 again.

20 Were you suggesting that it would be 18:47:31  
21 unethical for the exploration team to be presenting  
22 these maps?

23 A. No.

24 MS. JENSEN: Objection. Asked and  
25 answered. 18:47:41

1 BY MR. GRUENSTEIN:

2 Q. I want to look at Exhibit 271. And in  
3 particular, I believe it's Slide 11 that Ms. Jensen  
4 was asking you questions about. Oh, no. I'm sorry.

5 It was Slide 9.

18:48:11

6 So, again, I'm showing you 271 and Slide 9  
7 in the attachment.

8 Again, can you explain what the "200 MBOE"  
9 refers to?

10 A. The 200 MBOE, it's 200 million barrels, by  
11 the way. It's not 200,000 barrels. It should be  
12 200 million barrels. That's the economic limit for  
13 Shenandoah, given the input parameters for the PEEP  
14 economic case. It does not --

15 THE COURT REPORTER: What case? What  
16 economic case?

17 THE WITNESS: The -- the PEEP, P-E-E-P,  
18 economic case that was generated. It does not infer  
19 that the size of the field at the time is 200  
20 million barrels. All that tells us is that that's  
21 what we need to achieve for a standalone spar  
22 facility with the given oil price of \$60 per barrel.

23 Q. And then on the tree diagram above that,  
24 it says, "Success, 88.2%; Fail, 11.8%."

25 What does that refer to?

18:49:22

1           A. What that refers to is the reserve  
2 resource distribution that they used to understand  
3 what the chance of success would be and what the  
4 chance of failure would be, given the investment of  
5 a standalone spar cost.

18:49:40

6           So at this point in time, they were using  
7 that resource distribution that's alluded to in  
8 another slide in this particular presentation. And  
9 it's an 88 percent probability of success and,  
10 essentially, a 12 percent probability of failure at  
11 the --

18:49:55

12          Q. And what does it mean? Oh, I'm sorry. Go  
13 ahead.

14          A. I'm just saying at the time, we viewed  
15 this field as definitely very viable commercial  
16 going forward. That's what that's inferring.

18:50:01

17          Q. And when you say "88.2 percent success,"  
18 can you explain what that means?

19          A. That means that we have a probability of  
20 a -- a standalone spar facility development going  
21 forward --

18:50:14

22          Q. Okay.

23          A. -- 88 percent probability that we'll have  
24 a successful field development.

25          Q. Once development took over control of the

18:50:26

1 project, did you have any -- did you have a view as  
2 to the potential success of this field?

3 A. We -- we set the clock, I guess, it's --  
4 would be the way to put it. We -- we threw out  
5 exploration's numbers and we started using our own. 18:50:47  
6 So, yeah, we still felt really good about potential  
7 chances of successful development as per this slide.

8 Q. And why did you end up doing -- drilling a  
9 Shen 5 and a Shen 6?

10 A. Because we needed to understand the 18:51:02  
11 resources in those particular areas to be able to  
12 move forward with a successful development. We  
13 needed to understand. We hadn't -- we hadn't  
14 reached material volumes to achieve a -- a -- an  
15 economic prospect at that point in time. So we 18:51:20  
16 needed to continue to drill and appraise.

17 Q. Okay. During -- during your testimony,  
18 you were asked questions about the phrase "exit  
19 strategy." And you said that you preferred the  
20 word "optionality." 18:51:33

21 Why do you prefer optionality to exit  
22 strategy?

23 A. Well, I would say that every -- every  
24 project has a -- has an ex- -- should have an ex- --  
25 exit -- exit strategy, but -- and given context of 18:51:46

1       the presentation here, what we wanted to illustrate  
2       was that there's plenty of upside in this field to  
3       be able to reach a -- an economic project going  
4       forward.

5                  And so, in that flavor, we felt like we           18:52:00  
6       could go forward with what we felt like we had in  
7       those resource distributions.

8       Q.     And during this presentation, were you  
9       recommending that the company exit Shenandoah?

10      A.    We did not recommend that. We just wanted    18:52:14  
11       to make sure that they -- that they understood it --  
12       it is an option. We have multiple options going  
13       forward, big -- big, medium, small cases, and then,  
14       of course, the exit strategy.

15      Q.     Let's look at Slide 14.                           18:52:28

16                  And what does this slide show where it  
17       discusses "Shen 5 success" and "Shen 6 success"?

18      A.    So let me just start. The current proven  
19       resources that had been established were somewhere  
20       around 30 to 70 million barrels of oil equivalents.    18:52:57  
21       That -- that's on a net basis, by the way. So the  
22       gross was 200 million barrels.

23                  And after Shen 5, what we would have  
24       projected in the success case was the resources  
25       moving up to 500 million barrels or about 70 to 180    18:53:14

1 million barrels net.

2 And then up to -- after Shen 6, in a  
3 success case, that resource could have been as large  
4 as 2.2 million barrels of oil equivalents or on a  
5 net basis, 315 to 800 million barrels of  
6 equivalents.

18:53:30

7 Q. And if -- if both of those, Shen 5 and  
8 Shen 6, had been successful, would the Shenandoah  
9 project have been successful?

10 MS. JENSEN: Objection. Leading.

18:53:45

11 THE WITNESS: Yes, that is -- it would  
12 have been successful because if you look at the Shen  
13 6 and you recall the 200 million barrel of oil  
14 equivalent threshold, the 315 to 800 million barrels  
15 of oil equivalents would have been well within that  
16 range of commerciality.

18:54:00

17 BY MR. GRUENSTEIN:

18 Q. Did you know before you drilled Shen 5 and  
19 Shen 6 what the results would have been?

20 A. Of course not.

18:54:08

21 Q. And -- and, again, if the results had been  
22 positive, as shown here on these slides, how  
23 successful would the Shenandoah project have been?

24 MS. JENSEN: Objection. Calls for  
25 speculation.

18:54:24

1 THE WITNESS: Depending upon where you  
2 were on that distribution of 315 to 800 million  
3 barrels of oil equivalents, certainly on the 800  
4 mill- -- million barrel equivalent, it would have  
5 been a very, very, very successful case. And 315 18:54:39  
6 would be a -- be a good outcome, but -- but not --  
7 certainly not as good as a -- a great outcome like  
8 it would be at an 800 million barrel. But anywhere  
9 within that distribution, it would have been very  
10 economic and proceeded to go forward with. 18:54:48

11 MR. GRUENSTEIN: Okay. I have no further  
12 questions.

13 MS. JENSEN: Okay. We're going to take a  
14 quick break. So I'd say five minutes.

15 THE VIDEOGRAPHER: Going off the record, 18:55:02  
16 6:54 p.m.

17 (Short recess taken.)

18 THE VIDEOGRAPHER: Back on record,  
19 7:25 p.m.

## 20 | FURTHER EXAMINATION

21 BY MS. JENSEN:

22 Q. Okay. Mr. McGrievy, could you turn back  
23 to Exhibit 116, please.

24 A. Okay.

25 Q. And could you please turn to the third 19:26:42

1 e-mail down on this string. This is an e-mail from  
2 you to Darrell Hollek and on November 17, 2014.

3 And could you read into the record your  
4 e-mail starting with "We also have to come to terms  
5 with."

19:27:04

6 A. "We also have to come to terms with an  
7 internal map that both exploration and development  
8 can support as they still show acknowledgement of  
9 faulting; this, however, will not be deliverable for  
10 some time. It's hard to go to partner meetings with 19:27:20  
11 a straight face and not acknowledge faulting when  
12 all of our partners externally share the same  
13 concerns." [As read]

14 Q. And the "they" in this -- in the portion  
15 of the e-mail that you just read is exploration; 19:27:37  
16 correct?

17 A. That's correct.

18 Q. And it was hard to keep a -- a straight  
19 face regardless of whether exploration was  
20 presenting a map with no faulting or development 19:27:52  
21 was; correct?

22 A. The inference there is that we didn't  
23 support their maps because we developed our own, and  
24 they, in turn, developed their own as well, so...

25 Q. Well, that's -- that's not exactly the 19:28:08

1 question I asked, Mr. McGrievy.

2 My question was: It was hard to go to  
3 partner meetings with a straight face, no matter  
4 whether it was exploration presenting it or  
5 development; correct?

19:28:18

6 A. That's correct, yeah.

7 Q. Okay. Mr. Gruenstein asked some questions  
8 of Exhibit 271. Could we turn back to that, please.

9 While you're doing that, I just want to  
10 confirm that all of the -- the documents that  
11 Mr. Gruenstein asked you about were documents that  
12 you went over with him in preparation for the  
13 deposition; correct?

19:28:44

14 A. I've seen this, yes.

15 Q. Okay. And this is one of the documents  
16 that you went over with Mr. Gruenstein in  
17 preparation for today?

19:28:52

18 A. I believe so, yes.

19 Q. So the context for this presentation that  
20 was being given, was -- this was right after it --  
21 the project was formally turned over to the  
22 development side of the house; correct?

19:29:06

23 A. I think so, yes.

24 Q. And so, this was a time at which the  
25 development team was trying to make a case for Shen; 19:29:26

1 CERTIFICATE OF REPORTER  
2

3 I, Hanna Kim, a Certified Shorthand  
4 Reporter, do hereby certify:

5 That prior to being examined, the witness  
6 in the foregoing proceedings was by me duly sworn to  
7 testify to the truth, the whole truth, and nothing  
8 but the truth;

9 That said proceedings were taken before me  
10 at the time and place therein set forth remotely and  
11 were taken down by me in shorthand and thereafter  
12 transcribed into typewriting under my direction and  
13 supervision;

14 I further certify that I am neither  
15 counsel for, nor related to, any party to said  
16 proceedings, not in anywise interested in the  
17 outcome thereof.

18 Further, that if the foregoing pertains to  
19 the original transcript of a deposition in a federal  
20 case, before completion of the proceedings, review  
21 of the transcript [x] was [ ] was not requested.

22 In witness whereof, I have hereunto  
23 subscribed my name this 29th day of August, 2022.



24 Hanna Kim

25 CLR, CSR No. 13083

## **Exhibit 7**

1                   UNITED STATES DISTRICT COURT  
2                   SOUTHERN DISTRICT OF TEXAS  
3                   HOUSTON DIVISION  
4

5       In re ANADARKO PETROLEUM                   ) Civil Action No.  
6       CORPORATION SECURITIES                       ) 4:20-cv-00576  
7       LITIGATION                                      )  
8                   ----- )  
9  
10  
11

12                  VIRTUAL VIDEOCONFERENCE VIDEO-RECORDED DEPOSITION OF  
13   DARRELL HOLLEK  
14  
15                  Thursday, September 1, 2022  
16                  Remotely Testifying from The Woodlands, Texas  
17  
18  
19  
20  
21  
22

23                  Stenographically Reported By:  
24                  Hanna Kim, CLR, CSR No. 13083  
25                  Job No. 5378973

1 the record. It's 1:32 p.m.

2 (Hollek Deposition Exhibit 287 was marked  
3 electronically.)

4 BY MS. JENSEN:

5 Q. Okay. I've marked as Exhibit 287 a 13:33:26  
6 document that bears the Bates stamp APC '609755.

7 A. Let me catch up here.

8 I see it.

9 Q. Do you see it?

10 A. Yeah, I -- I have it.

13:33:42

11 Q. Okay. Great.

12 So the e-mail starts the same as the one  
13 we just saw, and then there is additional e-mails.

14 And my first question will be whether it  
15 appears to be a true and accurate copy of an e-mail 13:33:55  
16 between yourself and David Janise at the top.

17 A. Okay. I've read it. It looks accurate.

18 Q. Okay. And could you, first of all, tell  
19 me who David Janise is?

20 A. He may have been my planner at that point. 13:34:46  
21 Again, they come in and out, but he may have been my  
22 planner at that point, sort of my right-hand guy to  
23 pull stuff together.

24 Q. Is -- is it kind of as a -- an executive  
25 secretary or chief of staff type of role? 13:35:04

1 A. Yes. Yes.

2 Q. Okay. And so he's -- he's not a scientist  
3 on the team?

4 A. No. He would have been a planner. He's a  
5 reservoir engineer by degree. 13:35:14

6 Q. Okay. I see. All right.

7 So could you read your e-mail, please.

8 A. "Start from Jim's e-mail below. Appears  
9 we need to pull this together in short order.

10 Unfortunately, much of our future is based on 13:35:32

11 Ernie's view of exploration opportunities. I think  
12 we need to work through costs of doing business,  
13 regulations, skilled work force, 20K technology, and  
14 what does Gulf of Mexico mean to us, maintaining  
15 conventional expertise, feedstock for 13:35:49

16 International." [As read]

17 Q. Okay. That -- that's -- that's good.

18 And your reference there to  
19 "Unfortunately, much of our future is based on  
20 Ernie's view of exploration opportunities," you're 13:35:59  
21 referring to Ernie Leyendecker -- Ernie Leyendecker?

22 A. Yes.

23 Q. And you disagreed sometimes with Ernie  
24 Leyendecker's perspective on the exploration's  
25 opportunities? 13:36:13

1           A. Disagree, I don't know that I disagree.

2       It was just important for -- because he was the  
3       feedstock to development. So whatever came out of  
4       exploration, that is our future.

5           So we develop it. We know what it is.           13:36:23

6       And then beyond that, we have to look at what's  
7       coming our way from exploration.

8           Q. And sometimes his views were overly  
9       optimistic; right?

10          A. I wouldn't say necessarily. We've missed      13:36:35  
11       developments on the upside and the downside.

12          Q. The ex- -- the exploration it's -- it's  
13       well known had different drivers from the  
14       development team; right?

15          A. Well, yes, their job is to try to figure      13:36:49  
16       how big it could be, and ours is to try to find out  
17       do we have enough to spend the money needed to  
18       develop it.

19          Q. And sometimes -- well, strike that.

20           And -- and based on the drivers,                13:37:03  
21       exploration was known to have more optimistic  
22       numbers generally; right?

23          A. I think exploration everywhere is more  
24       optimistic than development.

25          Q. And in this instance, exploration at        13:37:16

1 Anadarko was more optimistic?

2 A. I don't know that they're more optimistic  
3 other than they're making their decisions off fewer  
4 data points, and so they can only be so accurate.

5 And, yes, they're going to err on the high 13:37:35  
6 side in terms of this is how big it could be, but  
7 additional wells that development comes up with is  
8 what helps narrows it down to a better picture.

9 And sometimes that number can grow beyond  
10 what they have. 13:37:51

11 Q. And senior management looked to the  
12 development side for a reality check on these  
13 prospects; right?

14 A. To make sure we have enough to make it  
15 economic. 13:38:03

16 What happens in many of these fields, over  
17 the years, they'll actually get a lot bigger. But  
18 when we make a development decision, we have to make  
19 sure we have enough to make sure we make economic  
20 hurdles. 13:38:17

21 Q. Right.

22 And so senior management looked to the  
23 development perspective to -- to balance out the  
24 optimism of exploration; right?

25 A. Well, again, development's not always 13:38:23

1 right. Sometimes it turns out to be twice as big as  
2 we thought. And that's a good thing.

3 Q. So -- so just focusing on my question, but  
4 senior management looked to the development to  
5 have -- to -- to balance out what could sometimes be 13:38:36  
6 an optimistic view by exploration; right?

7 MS. ROSENBERG: Objection to form.

8 THE WITNESS: They -- they looked to us to  
9 be able to book reserves. And, therefore, that's a  
10 more stringent definition of -- of booking. 13:38:50

11 BY MS. JENSEN:

12 Q. And throughout the Shenandoah project, the  
13 development team did provide their views to senior  
14 management; correct?

15 A. Yes.

16 Q. And it was important to you to make sure  
17 that senior management had all the relevant  
18 information to make a good decision on Shenandoah;  
19 right?

20 MS. ROSENBERG: Objection to form.

13:39:13

21 THE WITNESS: Yeah, from time to time,  
22 we'd give them updates. But early on in the  
23 project, it's, again, driven by the exploration  
24 thoughts.

25 So development may have had their

13:39:22

1 CERTIFICATE OF REPORTER

2 I, Hanna Kim, a Certified Shorthand  
3 Reporter, do hereby certify:

4 That prior to being examined, the witness  
5 in the foregoing proceedings was by me duly sworn to  
6 testify to the truth, the whole truth, and nothing  
7 but the truth;

8 That said proceedings were taken before me  
9 at the time and place therein set forth remotely and  
10 were taken down by me in shorthand and thereafter  
11 transcribed into typewriting under my direction and  
12 supervision;

13 I further certify that I am neither  
14 counsel for, nor related to, any party to said  
15 proceedings, not in anywise interested in the  
16 outcome thereof.

17 Further, that if the foregoing pertains to  
18 the original transcript of a deposition in a federal  
19 case, before completion of the proceedings, review  
20 of the transcript [x] was [ ] was not requested.

21 In witness whereof, I have hereunto  
22 subscribed my name. Dated: 7TH day of SEPTEMBER, 2022

23  
24  


25 Hanna Kim

CLR, CSR No. 13083

## **Exhibit 8**

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION

In re ANADARKO PETROLEUM ) Civil Action No.  
CORPORATION SECURITIES ) 4:20-cv-00576  
LITIGATION )  
----- )

VIRTUAL VIDEOCONFERENCE VIDEO-RECORDED  
DEPOSITION OF ERNEST A. LEYENDECKER, III

Thursday, September 22, 2022

## Remotely Testifying from Houston, Texas

Stenographically Reported By:

Hanna Kim, CLR, CSR No. 13083

Job No. 5378982

1 A. To collaborate.

2 Q. When you say "to collaborate," what do you  
3 mean?

4 A. Exchange technical interpretations, ideas,  
5 information. 11:02:33

6 Q. When did you form the joint  
7 development/exploration team for Shenandoah?

8 A. I don't recall when.

9 Q. You said at the outset of the project; is  
10 that right? 11:02:49

11 A. Soon after I arrived with those  
12 responsibilities, yes.

13 Q. And who from exploration was on that team?

14 A. Tim Trautman, Beth Kendall, Jake Ramsey --

15 Q. Okay. Is that all? 11:03:07

16 A. -- Robert Strickling -- and Robert  
17 Strickling.

18 Q. Okay. And who from development was on  
19 that team?

20 A. I believe it was Chip Oudin, Lea Frye, 11:03:16  
21 Paul Chandler, and Pat McGrievy.

22 Q. Okay. And I take it that you pulled  
23 together this joint development/exploration team  
24 because you wanted to make the best decisions about  
25 the Shenandoah oil field; is that fair? 11:03:41

1 A. Yes.

2 Q. Okay. And you wanted as much expertise as  
3 you could gather on that subject; correct?

4 A. Correct.

5 Q. We talked a little bit about the executive 11:03:53  
6 committee; correct?

7 A. Yes.

8 Q. And you joined the executive committee in  
9 2016; correct?

10 A. Yes.

11:04:07

11 Q. Okay. Before you joined the executive  
12 committee, I take it that you provided information  
13 to the executive committee; is that correct?

14 A. Yes.

15 Q. And I take it that you didn't conceal  
16 anything relating to Shenandoah from the executive  
17 committee; is that fair?

18 A. That's fair.

19 Q. And you would agree that it's important  
20 for the executive committee to have complete  
21 information when making a decision; right? 11:04:29

22 A. Yes.

23 Q. You would have passed on all analyses from  
24 this joint team that we've just discussed to the  
25 executive committee; correct? 11:04:39

A. Yes. During the period I was responsible for that -- that part of the -- the business, yes.

Q. What period were you responsible for the joint team?

A. Up until April of 2015.

11:04:58

Q. And who was responsible for the team after that?

A. Darrell Hollek and Danny Brown and Bill Tedesco, I believe.

Q. Why don't we take a look at Plaintiffs' Exhibit 309 for identification.

(Leyendecker Deposition Exhibit 309 was  
marked electronically.)

BY MR. DROSMAN:

Q. Okay. If you refresh your browser, you should be able to view Plaintiffs' Exhibit 309.

And, for the record, I'll note that Plaintiffs' Exhibit 309 consists of an e-mail chain bearing Bates numbers APC-00588654 to '655.

Do you see that you're the recipient of  
the top e-mail on the chain?

A. Yes.

Q. And that was from Frank Patterson; is that right?

A. Yes.

11:06:45

1 Q. And that's October 1st, 2013; right?

2 A. Correct.

3 Q. Bearing the subject "RE: Exploration  
4 Velocity"; correct?

5 A. Yes.

11:06:54

6 Q. And is Plaintiffs' Exhibit 309 a true and  
7 correct copy of the e-mail that you received on or  
8 about October 1st, 2013?

9 A. I'm sorry, can you -- can you rephrase?

10 Can you say that again? Is it what?

11:07:11

11 Q. Is Plaintiffs' Exhibit 309 a true and  
12 correct copy of the e-mail string that you received  
13 on October 1st, 2013?

14 A. It appears so.

15 Q. Okay. What's "exploration velocity"?

11:07:23

16 A. It was a concept to accelerate --

17 (Interruption in audio/video.)

18 BY MR. DROSMAN:

19 Q. I'm sorry, you cut out. Can you repeat  
20 that, please.

11:07:41

21 A. It was a concept to accelerate a discovery  
22 to first production.

23 Q. Okay. And do you see that you sent the  
24 e-mail below that?

25 A. Yes.

11:07:53

1 Q. And you sent that to Frank Patterson as  
2 well; right?

3 A. Yes, it appears so.

4 Q. And you wrote, "Ok. Coincidentally, just  
5 got off the phone with Darrell & explained some of 11:08:02  
6 the challenges with those that continue to whine &  
7 pass on toxic messages like 'we can't drill'";  
8 right?

9 A. Yes, I see that.

10 Q. And you were referring to Darrell Hollek; 11:08:15  
11 right?

12 A. I'm sorry, can you clarify the question?  
13 I was --

14 Q. When you wrote "Darrell" in that e-mail  
15 passage that I just read to you, you were referring 11:08:31  
16 to "Darrell Hollek"; correct?

17 A. No.

18 Q. Which Darrell were you referring to?

19 A. I was -- I believe I was referring to  
20 some- -- someone else. 11:08:44

21 Sorry, can you give me a chance to read  
22 this a second?

23 Q. Sure.

24 A. I don't -- I don't -- I don't have the  
25 full context here. 11:08:53

1 Q. You understand that it actually lowered  
2 the resource range for the Shenandoah oil field,  
3 don't you?

4 A. It reduced the uncertainty of the range,  
5 yes, that's correct. 13:40:05

6 Q. Now, my question was, you understand that  
7 the Shenandoah 3 well actually lowered the resource  
8 range for the Shenandoah oil field; correct?

9 A. No. It reduced the uncertainty of the  
10 range. 13:40:14

11 Q. By lowering the range; right, sir?

12 A. It reduced the uncertainty, a statistical  
13 distribution of the potential outcomes of the  
14 discovery.

15 Q. Okay. Did the Shenandoah 3 well increase  
16 the resource range for the Shenandoah oil field or  
17 decrease the resource range? 13:40:24

18 A. No. It reduced the statistical  
19 uncertainty.

20 Q. I'm not asking about the uncertainty, sir. 13:40:36  
21 I'm asking you about the resource range.

22 Did the Shenandoah -- -doah 3 well  
23 increase your estimation of the resource range for  
24 the Shenandoah oil field or decrease your estimation  
25 of the resource range for the Shenandoah oil field? 13:40:48

A. Which -- which particular part of the distribution?

Q. The resource range, sir. The amount of resources that you believed the --

A. The range --

13:41:01

Q. P10 --

(Simultaneous speaking.)

( Interruption in audio/video.)

9 THE COURT REPORTER: I'm sorry. One  
10 second. I'm sorry. There was some talking over.

11 MR. DROSMAN: Sure.

12 THE COURT REPORTER: Could you please  
13 repeat.

14 MR. DROSMAN: Sure.

15 BY MR. DROSMAN:

13:41:09

16 Q. The mean, sir.

17 A. Oh --

18 Q. It was the mean --

19 A. I would have to see -- I would believe it

reduced the mean of the distribution, yes --

13:41:15

21 Q. Okay.

22 A. -- which reduced the uncertainty of the --  
23 of the range, yes.

24 Q. Okay. So to be complete, you'd want to  
25 tell investors that it reduced the mean, wouldn't

Page 134

1 you, reduced the range --

2 (Simultaneous speaking.)

3 (Interruption in audio/video.)

4 THE COURT REPORTER: I'm sorry. Excuse

5 me. One second. If we can finish the question and  
6 then the answer, because I'm getting talking over.

13:41:35

7 Thank you.

8 THE WITNESS: I'm sorry, Dan. Go ahead.

9 BY MR. DROSMAN:

10 Q. Sure.

13:41:38

11 To be complete, sir, you would want to  
12 make sure to tell investors that the Shenandoah 3  
13 oil field reduced the resource range for the entire  
14 field, wouldn't, you, sir?

15 A. No, sir. I -- I -- I wanted to

13:41:52

16 disclose -- I was considering we should disclose  
17 that -- that we reduce the uncertainty.

18 We, to my know- -- I, to my knowledge,

19 don't ever recall disclosing to investors a -- a  
20 range or a number for Shenandoah. We talk -- we  
21 always talk about the range of possibilities and the  
22 distribution. And so the uncertainty is reduced,  
23 which does change the range.

13:42:09

24 Q. But the range got lower; right?

25 A. To -- I'm sorry, what's the question?

13:42:26

1 Q. The range got lower, didn't it?

2 A. The range, yes, it cha- -- it changed.

3 Q. It would -- it decreased; right? You  
4 don't want to say that word; right? But it did  
5 decrease, didn't it?

13:42:39

6 A. I believe the mean probably decreased. I  
7 don't have that fact in my head today, but I don't  
8 ever recall telling investors what the resource  
9 range was or how big Shenandoah might potentially --  
10 you know, how big it was.

13:42:55

11 We -- we didn't -- and I don't -- I didn't  
12 disclose that. We didn't ever disclose that. It's  
13 to my knowledge.

14 Q. Oh, I know that, sir.

15 I'm asking you about that right here,  
16 where you wouldn't have had to disclose the range in  
17 order to tell investors that Shenandoah 3 decreased  
18 the resource range for the Shenandoah field; right?

13:43:04

19 A. I'm sorry, can you say that again to make  
20 sure I understand what you're asking?

13:43:18

21 Q. You would not have had to disclose what  
22 the range was in order to tell investors that the  
23 resource range had decreased after the Shenandoah 3  
24 well was drilled?

25 A. That's fair.

13:43:36

1 Q. Okay. And that's not in this disclosure,  
2 is it, sir?

3 A. This is not the disclosure. This is --  
4 this is a -- an exchange of -- of what we might put  
5 in the disclosure.

13:43:50

6 Q. It's your suggestion, your proposed  
7 modification of the 10-K language, isn't it?

8 A. It's just -- it's a proposed  
9 modification --

10 Q. Okay.

13:43:58

11 A. -- correct.

12 Q. You didn't in- -- go ahead.

13 A. No, I was just going to say, it is a  
14 proposed modification. I -- I don't recall what was  
15 finally put in this 10-K. I'm -- I'm sure it must  
16 be somewhere here. But I -- I don't have that, and  
17 I don't have -- I don't recall what the final  
18 language was put in there.

13:44:07

19 But, yes, it's an option to discuss the  
20 uncertainty of the range, but we didn't -- we didn't  
21 ever talk about the -- the range of resources. This  
22 was still, you know, an appraisal process.

13:44:20

23 Q. You could have proposed modifying the 10-K  
24 language to simply let investors know that Shen 3 --  
25 that -- that the results of Shen 3 had decreased the

13:44:40

1 CERTIFICATE OF REPORTER

2 I, Hanna Kim, a Certified Shorthand  
3 Reporter, do hereby certify:

4 That prior to being examined, the witness  
5 in the foregoing proceedings was by me duly sworn to  
6 testify to the truth, the whole truth, and nothing  
7 but the truth;

8 That said proceedings were taken before me  
9 at the time and place therein set forth remotely and  
10 were taken down by me in shorthand and thereafter  
11 transcribed into typewriting under my direction and  
12 supervision;

13 I further certify that I am neither  
14 counsel for, nor related to, any party to said  
15 proceedings, not in anywise interested in the  
16 outcome thereof.

17 Further, that if the foregoing pertains to  
18 the original transcript of a deposition in a federal  
19 case, before completion of the proceedings, review  
20 of the transcript [x] was [ ] was not requested.

21 In witness whereof, I have hereunto  
22 subscribed my name this 27th day of September, 2022.

23  
24  
  
25

Hanna Kim, CLR, CSR No. 13083

## **Exhibit 9**

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION

5 In re ANADARKO PETROLEUM ) Civil Action No.  
6 CORPORATION SECURITIES ) 4:20-cv-00576  
LITIGATION )  
\_\_\_\_\_  
)

10  
11  
12 VIRTUAL VIDEOCONFERENCE VIDEO-RECORDED  
13 DEPOSITION OF CATHERINE ANNE GREEN

23 Stenographically Reported By:  
24 Hanna Kim, CLR, CSR No. 13083  
25 Job No. 5421322

1 from Mr. Burton incorrect information; correct?

2 MR. WYLLY: Objection.

3 THE WITNESS: I believe there was

4 misunderstanding in the communication between

5 For- -- between Forrest and I, where I believed that 11:54:51  
6 the resource estimates had increased.

7 BY MS. ROSSI:

8 Q. Okay. The third sentence in the analysis  
9 section states, "Therefore, it is appropriate to  
10 continue capitalization of this well cost as 11:55:24  
11 spend" -- "as suspended well cost, pending the  
12 determination of proved reserves for the Shenandoah  
13 project"; correct?

14 A. Correct.

15 Q. However, the accounting bulletin in 11:55:40  
16 Exhibit 332 that we've been discussing, that  
17 pertains to wells; correct?

18 A. Yes.

19 Q. So the determination whether to continue  
20 to capitalize a well, is made about -- on a 11:55:58  
21 well-by-well basis; correct?

22 A. So when the well is drilled, yes, there's  
23 an evaluation as to whether to capitalize that  
24 specific well cost subject to then the ongoing  
25 consideration of whether there's sufficient progress 11:56:14

1 being made in the overall project.

2 Q. But the policy in 332 does not apply to  
3 the entire project field or area; correct?

4 A. No, it does, based on the paragraph that  
5 talks about sometimes when a well is drilled, 11:56:40  
6 additional drilling may need to occur before you can  
7 have proved reserves.

8 Q. If we can go back to that exhibit, so  
9 let's go back to 332. Let me know when you're back  
10 there. 11:57:12

11 A. Okay.

12 Q. Okay. So looking at Exhibit 332, on the  
13 first page, under the "policy" heading in about the  
14 middle of the paragraph, it states, "All exploratory  
15 well costs are initially capitalized as incurred 11:57:25  
16 pending the determination of whether the well has  
17 found proved reserves"; correct?

18 A. Yes, but as I've stated, there's also a  
19 section in here that says sometimes a well finds  
20 reserves, but those reserves cannot be classified as 11:57:47  
21 proved when the drilling is completed. That's on  
22 page 5.

23 Q. We can go to page 5 where you're talking  
24 about, which is under the "exploratory wells"  
25 heading, and it's that third paragraph under that 11:58:07

1 heading.

2 A. Mm-hmm.

3 Q. And then it states, "In those cases, the  
4 capitalized exploratory well costs shall continue to  
5 be capitalized as WIP if the well has found a 11:58:17  
6 sufficient quantity of reserves to justify its  
7 completion as a producing well and the Company is  
8 making sufficient progress assessing the reserves  
9 and the economic and operating viability of the  
10 project." [As read] 11:58:32

11 Correct? I skipped the parentheses. I  
12 apologize. But is that your understanding of this  
13 accounting bulletin, what I just read --

14 A. As it pertains to a stratigraphic test  
15 well, it's -- it is a hypothetical discussion around 11:58:56  
16 whether the well has found a sufficient quantity to  
17 justify its completion as a producing well. That's  
18 a hypothetical economic decision.

19 Q. Right. It is made on a well-by-well  
20 basis -- 11:59:08

21 A. Yes.

22 Q. -- the determination.

23 Not on a project basis?

24 A. Repeat your question, please.

25 Q. So the -- the policy requires that 11:59:24

1 reserves need to be found in the well, not on a  
2 project basis?

3 A. Our interpretation, the way we applied  
4 this for exploratory stratigraphic wells that were  
5 non-hydrocarbon bearing, was based on the 11:59:41  
6 information that was provided by that well -- by  
7 that well and the overall impact that that had on  
8 the resources or the reserves that would be booked  
9 at FID.

10 Q. Based on the well? 11:59:54

11 A. Based on the information from the well.

12 Q. Okay. And this is the same -- this is the  
13 same standard under ASC 932-360; correct?

14 A. Yes. Yeah, 932-360-25-18, I believe it is  
15 where -- let me find that. 12:00:25

16 Q. So it's in 932-360-25-10.

17 A. I'm looking at 25-18 for the stratigraphic  
18 test well, though. Well, had it not been simply a  
19 stratigraphic test well, which is sort of a  
20 hypothetical of what -- what information did you 12:00:59  
21 gather from the well, and would that justify  
22 completion of a well.

23 Q. Okay. But that's not in Anadarko's policy  
24 in Exhibit 332; correct?

25 A. Well, our policy gen- -- our policy 12:01:13

1 generally wouldn't touch on every single element of  
2 the GAAP associated with that, but certainly that  
3 was -- that was -- we applied GAAP, and we applied  
4 this particular section to -- to wells that were  
5 stratigraphic test wells in the limited instances 12:01:34  
6 where there were not hydrocarbons in the wellbore.

7 Q. Going back to my initial question, though,  
8 this analysis is done on a well-by-well basis;  
9 correct?

10 A. Yes, whether you should ca- -- whether you 12:01:51  
11 should capitalize -- continue to suspend the well  
12 cost is done on a well-by-well basis, subject to  
13 also the sufficient progress criteria for the  
14 overall project.

15 Q. But that's only if the well finds proved 12:02:03  
16 reserves; correct?

17 A. No, because in the examples that we talked  
18 about, you're not finding proved reserves because  
19 you need to do additional work to determine whether  
20 you have an economically viable project. 12:02:19

21 Q. But looking back at Exhibit 332, at that  
22 same paragraph, it says, "In certain circumstances,  
23 an exploratory well finds reserves, but those  
24 reserves cannot be classified as proved when  
25 drilling is completed." 12:02:37

1                   And as you testified, that's the first  
2 step?

3                   A. That is -- that is the first criteria,  
4 yes, that if there are reserves in the wellbore that  
5 justify its completion, yes, you would continue       12:02:50  
6 capitalization. The interpretation that we had at  
7 Anadarko was for exploratory-type stratigraphic  
8 wells whether -- where there were not hydrocarbons  
9 in the wellbore, and it happened in limited  
10 circumstances, we would also consider was there      12:03:06  
11 substantive positive evidence gained in the  
12 information we got from drilling that well related  
13 to the overall project.

14                  MS. ROSSI: Okay. I'm going to move to  
15 strike, Ms. Green, your response after               12:03:18  
16 "capitalized."

17 BY MS. ROSSI:

18                  Q. Was Shenandoah 3 ever going to be a  
19 producing well?

20                  A. No.   12:03:29

21                  Q. Okay.

22                  A. Or not to my knowledge, I should say.

23                  Q. Okay. If we can go back to Exhibit 338.  
24 And this is your memorandum titled, "Suspended Well  
25 Accounting Analysis - Shenandoah 3"; correct?      12:04:10

1 A. Yes.

2 Q. Was this memorandum sent to Cathy Douglas?

3 A. I sent the memo to Louis Williams, I  
4 believe based on a request and an understanding that  
5 Cathy had asked for it to further some discussions 12:04:26  
6 that she was going to be having. That's my  
7 understanding at the time. I don't have the e-mails  
8 where it was sent to Cathy, but my understanding was  
9 that it going to Cathy.

10 Q. Who is Cathy Douglas?

11 A. She was the chief accounting officer at  
12 Anadarko, in -- at yearend 2014.

13 Q. Were you aware that Cathy Douglas  
14 exchanged e-mails with the chief accounting officer  
15 of Marathon in December of 2014? 12:04:54

16 A. Not in 2014 or 2015, I was not aware of  
17 that.

18 Q. But were you made aware of that later?

19 A. Yes.

20 Q. Do you recall what Cathy Douglas and the 12:05:03  
21 chief accounting officer of Marathon discussed in  
22 that e-mail?

23 A. I didn't see the e-mail. But based on  
24 information I was provided, was that Cathy was  
25 relying on the future utility of the wellbore for 12:05:20

1 suspension of the well cost.

2 Q. And despite Cathy Douglas' e-mail to  
3 Marathon, Marathon still expensed Shenandoah 3 in  
4 2014; correct?

5 A. I'm not familiar with what Marathon's 12:05:40  
6 accounting treatment for Shen 3 was.

7 Q. You did not look at your partners'  
8 accounting treatment of wells during the course of  
9 the Shenandoah project?

10 A. I don't specifically recall looking at 12:05:52  
11 specific -- what specific partners may have done  
12 and, you know, and what that basis might have been.

13 Q. Are you aware that ConocoPhillips also  
14 expensed Shenandoah 3?

15 A. Not specifically, I don't recall. 12:06:07

16 Q. Do you recall partners expensing  
17 Shenandoah 3, not just these -- who these specific  
18 partners were?

19 A. It's hard for me to say back in the  
20 beginning of the 2015 period or yearend 2014, 12:06:28  
21 whether I was aware of that or not. I don't recall.

22 MS. ROSSI: Okay. I am going to introduce  
23 another exhibit.

24 (Green Deposition Exhibit 339 was marked  
25 electronically.) 12:07:10

1 CERTIFICATE OF REPORTER

2 I, Hanna Kim, a Certified Shorthand  
3 Reporter, do hereby certify:

4 That prior to being examined, the witness  
5 in the foregoing proceedings was by me duly sworn to  
6 testify to the truth, the whole truth, and nothing  
7 but the truth;

8 That said proceedings were taken before me  
9 at the time and place therein set forth remotely and  
10 were taken down by me in shorthand and thereafter  
11 transcribed into typewriting under my direction and  
12 supervision;

13 I further certify that I am neither  
14 counsel for, nor related to, any party to said  
15 proceedings, not in anywise interested in the  
16 outcome thereof.

17 Further, that if the foregoing pertains to  
18 the original transcript of a deposition in a federal  
19 case, before completion of the proceedings, review  
20 of the transcript [x] was [ ] was not requested.

21 In witness whereof, I have hereunto  
22 subscribed my name.

23 Dated: 3rd day of October, 2022

24 

Hanna Kim

25 CLR, CSR No. 13083

## **Exhibit 10**

1 IN THE UNITED STATES DISTRICT COURT  
2 FOR THE SOUTHERN DISTRICT OF TEXAS  
3 HOUSTON DIVISION

4 -----x  
5  
6 In re ANADARKO PETROLEUM Civil Action No.  
7 CORPORATION SECURITIES 4 :20-cv-00576  
8 LITIGATION

9 -----x  
10  
11 \*\*\*CONFIDENTIAL\*\*\*

12  
13 REMOTE VIDEOTAPED DEPOSITION BY VIRTUAL ZOOM OF  
14 LEA FRYE  
15 Friday, October 7, 2022

16  
17  
18  
19  
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21  
22  
23 Reported By: Lynne Ledanois, CSR 6811  
24 Job No. 142789  
25

1 Q So was a joint team formed with 10:47AM  
2 exploration and predevelopment scientists and  
3 engineers to work on Shenandoah?

4 A We each worked our own part. They were  
5 responsible for the wells, the appraisal wells that 10:47AM  
6 were drilling and we were responsible for looking at  
7 what a development might look like.

8 Q So the predevelopment team was brought on  
9 in 2014; is that right?

10 A Correct. 10:47AM

11 Q Was it common for a team of both  
12 exploration and predevelopment to work a project at  
13 the same time?

14 A For a very short period, yes.

15 Q So was Shenandoah representative of a 10:48AM  
16 typical project life cycle or was it different in  
17 the way that the predevelopment team worked with  
18 exploration?

19 MS. ROSENBERG: Objection to form.

20 THE WITNESS: It was different in the 10:48AM  
21 period of time overlapping between the two was much  
22 greater than I've seen on any other project.

23 BY MS. JENSEN:

24 Q So the overlapping amount of time that the  
25 predevelopment team was working the project with 10:48AM

1 exploration was unusual? 10:48AM

2 A Yes.

3 Q Why was it set up in this fashion for

4 Shenandoah?

5 MS. ROSENBERG: Objection to form. 10:49AM

6 THE WITNESS: It was set up --

7 MS. JENSEN: Since there was an objection

8 to form, let me ask it again.

9 Q Did you have an understanding as to why

10 there was a greater overlap in the Shenandoah 10:49AM

11 project with respect to the predevelopment team's

12 involvement?

13 A Yes.

14 Q And what was your understanding as to why?

15 A The leases had expired through the 10:49AM

16 government and we were on an extended life of lease

17 that was through drill time or operations on those

18 leases that had to be met within a certain time frame.

19 Q Anything else?

20 A In our terminology we use, we were on 10:50AM

21 180-day clock.

22 Q So you were recruited to the Shenandoah

23 team as a senior staff engineer and I believe your

24 testimony is that one of the tasks you took on was

25 running economics; is that right? 10:50AM

1 A Correct. 10:50AM

2 Q Is that the same as an economic model?

3 A Yes.

4 Q What was your economic model on Shenandoah  
5 to be used for? 10:50AM

6 A To look at different development options and  
7 comparing those to what would be the best option for  
8 development on that project if we decide to go to  
9 development.

10 Q Was your economic model to be used to 10:51AM  
11 assist the executive committee in making decisions  
12 about its investment in Shenandoah?

13 A Yes. From a capital standpoint of how much  
14 money to continue during a particular year, sort of  
15 budget numbers. 10:51AM

16 Q And was it important for your economic  
17 model to be accurate?

18 A Accurate, yes.

19 Q Why?

20 A To inform our board, our executives to the 10:52AM  
21 best information we know at that time where we see the  
22 value of that project and how that should rank against  
23 other projects in the company.

24 Q Is that also referred to internally as  
25 portfolio? 10:52AM

1 A Yes. 10:52AM

2 Q What could go wrong if the economic model

3 for Shenandoah wasn't accurate?

4 MS. ROSENBERG: Objection to form.

5 MS. JENSEN: I'll restate it. 10:52AM

6 Q Were there any risks associated with an

7 inaccurate model for Shenandoah?

8 A Yes.

9 Q What were those risks?

10 A That money could be allocated to a project 10:53AM

11 that is not adding as much value as another project

12 could.

13 MS. JENSEN: I'm going to mark an exhibit.

14 (Exhibit 345 was marked for identification

15 by the court reporter.) 10:53AM

16 BY MS. JENSEN:

17 Q Okay. You should be able to see what was

18 marked as Exhibit 345. For the record, this is a

19 document that bears the Bates stamp FRYE1940.

20 A Yes. 10:54AM

21 Q Do you recognize this document?

22 A Yes, I do.

23 Q What is this document?

24 A This is an outline from a course that I was

25 required to take at Anadarko. 10:54AM

1 Q On the left-hand side it says Rose & 10:54AM  
2 Associates.

3 What is Rose & Associates?

4 A An outside company that developed some best 10:54AM  
5 practices and procedures and some software to help  
6 companies in the oil industry evaluate prospects,  
7 economics and risk in general.

8 Q You said that you were required to take  
9 this training. Were others at Anadarko also  
10 required to take this Rose & Associates training? 10:55AM

11 A Anybody that worked in an exploration role  
12 was required to take this training.

13 Q Do you see green highlighting on this  
14 document?

15 A Yes. 10:55AM

16 Q Whose highlighting is that?

17 A That would be mine.

18 Q And did you highlight what you thought was  
19 important?

20 A Yes, I did. 10:55AM

21 Q Could you explain the highlighting that  
22 you have here?

23 A I'll start in Chapter 1, Introduction on the  
24 far -- top far right. "Without a consistent process  
25 in place, most companies will overestimate the 10:56AM

1 for Shen 5; correct? 5:26PM

2 A Correct.

3 MS. ROSENBERG: Let me show you what's

4 been marked as Exhibit 362, which is an email chain

5 and attachment beginning -- bearing Bates Number 5:27PM

6 APC-00222712.

7 (Exhibit 362 was marked for identification

8 by the court reporter.)

9 BY MS. ROSENBERG:

10 Q Do you see that? 5:27PM

11 A I have the document, yes.

12 Q Do you recognize this?

13 A This looks like an email that says that the

14 AFE was approved, in particular this says Walker

15 Ridge 51 Number 4. 5:27PM

16 Q Is Walker Ridge 51 Number 4 Shen 5?

17 A That's correct.

18 Q You're listed as the originator and

19 project manager; correct?

20 A Correct. 5:27PM

21 Q And so you were the one who was ultimately

22 responsible for preparing this AFE; right?

23 A I'll clarify on that. I was not responsible

24 for providing the cost estimates. That was the

25 responsibility of others in the drilling department to 5:28PM

1 provide me with cost. 5:28PM

2 As far as initiating it into a system  
3 internally and entering the information, I was  
4 responsible for doing that, correct.

5 Q And do you see that there is an attachment 5:28PM  
6 to this email that begins with an executive summary  
7 and then has a few further slides?

8 A Yes.

9 Q Did you prepare this slide, the executive  
10 summary? 5:28PM

11 A That slide would have been prepared with the  
12 whole development team including Pat McGrievy as our  
13 supervisor.

14 Q So you would have participated with the  
15 development team in creating these slides? 5:29PM

16 A Correct.

17 Q The first bullet point there says,  
18 "Shenandoah is an Anadarko-operated 2008 Wilcox oil  
19 discovery, located in the northwestern area of  
20 Walker Ridge in Blocks WR 51, 52 and 53, with the 5:29PM  
21 potential to be a major oil producing hub for APC."

22 Do you see that?

23 A Yes.

24 Q You agreed with that statement at the  
25 time; correct? 5:29PM

1 A That is in conjunction with a larger 5:29PM  
2 presentation which does not have all of this  
3 presentation included in here. And that presentation  
4 was presented to the executive committee, including  
5 Al Walker, prior to this submission for the AFE. 5:30PM

6 And in that presentation we talked about  
7 Shenandoah 5 is going to be a key well in  
8 determining whether or not this is going to be a  
9 major oil producing hub for APC or not.

10 Q So you thought that drilling Shen 5 was 5:30PM  
11 important to assess whether Shenandoah would be a  
12 major oil producing hub for APC?

13 MS. JENSEN: Objection, misstates the  
14 testimony.

15 THE WITNESS: As I said previously, we're 5:30PM  
16 evaluating if we felt the economics and the  
17 resources determined whether we would go forward  
18 with the development or not.

19 BY MS. ROSENBERG:

20 Q In the second bullet it begins, "In order 5:31PM  
21 to reduce reservoir side uncertainty, and to hold  
22 the lease, the Shenandoah predevelopment team's  
23 recommendation is to drill the WR 51 Number 4  
24 (Shenandoah Number 5) appraisal well at a 30 percent  
25 working interest, along with our partners." 5:31PM

1 Do you see that? 5:31PM

2 A Yes.

5 : 31PM

3 Q And that was the recommendation; right?

4 A That was the recommendation.

5 Q And then there's some discussion about the 5:31PM  
6 specifics of exactly where it was going to be  
7 drilled.

At the very bottom of the bullet, do you see the last sentence? It says, "This well will also be designed as a 'keeper well', rather than a expendable well to save on future development costs."

13 MS. JENSEN: Objection, the document  
14 speaks for itself.

15 THE WITNESS: That's what it states. 5:32PM

16 BY MS. ROSENBERG:

17 Q Can you explain what a keeper well is?

18           A     As we -- as I mention earlier in the  
19 presentation that Shenandoah was different in that we  
20 required the 20K technology. We called a well that  
21 was going to have the wellhead that met those  
22 requirements, the plan as part of doing this well was  
23 to have that technology ready in case this well was a  
24 successful well so we wouldn't have to spend money to  
25 abandon it and hopefully be able to use it in a

Page 208

1 development. 5:32PM

2 That's what the keeper well would be if 5:33PM  
3 that technology for that wellhead was ready and it  
4 was accepted internally to be BOEM, which they were  
5 the ones that controlled the regulatory requirements 5:33PM  
6 on that.

7 Q So your hope was that if the technology  
8 was ready and Shen 5 was a successful well, it could  
9 be used in a potential development?

10 A If the result of Shen 5 made us feel that we 5:33PM  
11 had enough reserves to go forward with development,  
12 yes.

13 Q Now, the third bullet on the page says,  
14 "The dry hole AFE cost for this well, expected to  
15 spud in March 2016 on the Diamond Ocean Black Hawk, 5:34PM  
16 is \$210 million (gross) which equates to \$63 million  
17 (net) to APC."

18 Do you see that?

19 A I'm sorry, I accidentally closed that  
20 document. Which document was it again? 5:34PM

21 Q That's okay. Exhibit 362.

22 A Okay. 362. What page are we on?

23 Q It's the third page the slide titled  
24 "Executive Summary."

25 A Okay. The third paragraph? 5:34PM

1                   THE VIDEOGRAPHER: We are back on the                   8:12PM  
2 record at 8:12 p.m. and this is the beginning of  
3 Media Unit Number 10. Go ahead.  
4                   FURTHER EXAMINATION  
5 BY MS. ROSENBERG:   8:13PM  
6 Q        Ms. Frye, do you still have Exhibit 371 in  
7 front of you?  
8 A        Hold on, let me check.  
9                   I don't, but I can open it. Would you  
10 like me to?   8:13PM  
11 Q        Yes, thank you.  
12 A        It is open.  
13 Q        This is the Shen 5 appraisal well proposal  
14 dated February 1st, 2016; right?  
15 A        Correct.   8:13PM  
16 Q        Ms. Jensen asked you some questions about  
17 the structure map on Slide 5.  
18                   Do you recall that?  
19 A        Yes.  
20 Q        With all of the information known at this                   8:13PM  
21 time, the recommendation was to drill Shen 5;  
22 correct?  
23                   MR. MINCES: Objection asked and answered.  
24                   THE WITNESS: I'll return back to my  
25 previous testimony that, remember, we were on a                   8:14PM

1       180-day clock, we had to either commence operations                   8:14PM  
2       or we would lose the leases without defining is  
3       there commercial hydrocarbons to go to development  
4       or not, so we were bringing this well forward for  
5       those purposes.   8:14PM

6 BY MS. ROSENBERG:

7       Q       You believed that that was the right thing  
8       to do to move the project closer to a minimum  
9       economic field size for sanctioning; right?

10           MR. MINCES: Same objection.   8:14PM

11           THE WITNESS: I'll clarify that it was the  
12       right thing to do to definitively define do we or do  
13       we not go forward with the development.

14 BY MS. ROSENBERG:

15       Q       And if you take a look at Slide 14.                           8:14PM

16       A       Yes.

17       Q       Ms. Jensen asked you some questions about  
18       the strategic opportunities listed at the bottom of  
19       that chart.

20           Do you see that?   8:15PM

21       A       Yes.

22       Q       There's also a timeline there, 2016, 2017,  
23       2018.

24           Do you see that?

25       A       Yes, I do.   8:15PM

1 Q And there is an orange star in mid 2018; 8:15PM  
2 is that fair?

3 A Yes, roughly that time frame.

4 Q And below that it's listed SOP/FID; right?

5 A Correct. 8:15PM

6 Q What does that mean?

7 A FID is an acronym for final investment  
8 decision. I'm blanking on what SOP stands for. There  
9 was many acronyms; I cannot recall that particular  
10 one. 8:16PM

11 Q Is it suspension of production?

12 A That fits with it, but I don't remember.

13 Q But FID definitely stands for final  
14 investment decision?

15 A Yes, I do recall that one, yes. 8:16PM

16 Q And so at this time, is it fair to say  
17 that you're targeting a decision about whether to go  
18 forward with the final investment decision in mid  
19 2018?

20 MR. MINCES: Objection, form. 8:16PM

21 THE WITNESS: I'll point out on the  
22 timeline there are multiple wells and what's implied  
23 with this timeline is drill Shen 5. If Shen 5 has  
24 success in the amount of new hydrocarbon proven  
25 probable, a new hydrocarbon potential distribution 8:17PM

1 in a sufficient manner, we would then drill Shen 6. 8:17PM

2 And then the next sort of call-out is upon  
3 success at Shen 6 which has deemed at that point we  
4 felt there were sufficient hydrocarbons to move  
5 forward, we would continue forward to that decision 8:17PM  
6 point.

I know this is a simplified slide, so that  
is inferred and that would have been discussed in  
words at the meeting, if that makes sense.

10 BY MS. ROSENBERG: 8:17PM

11 Q So the ultimate decision about whether to  
12 sanction the project would depend not only on Shen 5  
13 but also on Shen 6 and if those were being  
14 successful, you anticipated a decision likely in  
15 2018; is that fair?

16 A Likely --

17 MS. JENSEN: Objection.

18 | THE WITNESS: -- in early '18.

19 BY MS. ROSENBERG:

20 Q Ms. Jensen asked you a few questions about 8:18PM  
21 your motivations for filing your letter to the SEC.  
22 I believe you said you felt it was the right thing  
23 to do; is that right?

24 A Yes, that's correct.

Q You also told Anadarko that if they paid a 8:18PM

1 lump sum payment, you would go away quietly and 8:18PM  
2 confidentially; right?

3 MS. JENSEN: Objection, misstates the  
4 evidence.

5 THE WITNESS: That was prior to filing 8:19PM  
6 with the SEC.

7 BY MS. ROSENBERG:

8 Q And Anadarko did not pay you that lump sum  
9 payment?

10 MR. MINCES: Objection, asked and 8:19PM  
11 answered. We've covered all of this.

12 THE WITNESS: As I stated earlier, no, I  
13 did not receive any money.

14 MS. ROSENBERG: Nothing further. Thank  
15 you. 8:19PM

16 THE WITNESS: Thank you.

17 MS. JENSEN: We can go off the record.

18 THE VIDEOGRAPHER: For the day or just for  
19 now?

20 MS. JENSEN: For the day. 8:19PM

21 MS. ROSENBERG: For the day.

22 THE VIDEOGRAPHER: We are off the record.

23 The time is 8:19 p.m. This ends the testimony given  
24 by Lea Frye.

25 The total number of media used was ten and 8:19PM

CONFIDENTIAL

1           I, LYNNE M. LEDANOIS, a Certified Shorthand  
2 Reporter of the State of California, do hereby  
3 certify:

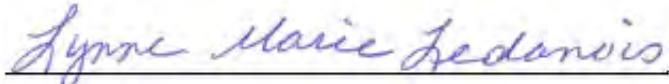
4           That the foregoing proceedings were taken  
5 before me at the time and place herein set forth;  
6 that any witnesses in the foregoing proceedings,  
7 prior to testifying, were duly sworn; that a record  
8 of the proceedings was made by me using machine  
9 shorthand which was thereafter transcribed under my  
10 direction; that the foregoing transcript is a true  
11 record of the testimony given.

12           Further, that if the foregoing pertains to  
13 the original transcript of a deposition in a Federal  
14 Case, before completion of the proceedings, review  
15 of the transcript [ ] was [x] was not requested.

16           I further certify I am neither financially  
17 interested in the action nor a relative or employee  
18 of any attorney or party to this action.

19           IN WITNESS WHEREOF, I have this date  
20 subscribed my name.

21 Dated: October 27, 2022

22  
23  
24 

25           LYNNE MARIE LEDANOIS

CSR No. 6811

## **Exhibit 11**

1 IN THE UNITED STATES DISTRICT COURT  
2 FOR THE SOUTHERN DISTRICT OF TEXAS  
3 HOUSTON DIVISION

4 -----x  
5  
6 In re ANADARKO PETROLEUM Civil Action No.  
7 CORPORATION SECURITIES 4:20-cv-00576  
8 LITIGATION

9 -----x  
10  
11 REMOTE VIDEOTAPED DEPOSITION BY VIRTUAL ZOOM OF  
12

13 ROBERT DANIELS

14 Thursday, October 13, 2022

15  
16  
17  
18  
19  
20  
21  
22  
23  
24 Reported By: Lynne Ledanois, CSR 6811  
25 Job No. 5378981

1 correct?

10:37AM

2 A That's what it says, yes.

3 Q That means 143 percent of target; is that  
4 correct?

5 A I don't think -- I don't know how that's  
6 calculated actually. 10:37AM

7 Q What went into your deciding what your  
8 bonus was?

9 A The AIP program.

10 Q What is that?

10:37AM

11 A Annual incentive plan.

12 Q Who determined your bonus?

13 A The board of directors.

14 Q And what components did they use?

15 A You would have to look at what the AIP plan  
16 was for 2014. 10:37AM

17 Q Did you have an understanding as to the  
18 components of your bonus?

19 A I understood what our AIP goals were.

20 Q And what were those?

10:38AM

21 A I don't know for 2014. We would have to  
22 look that up.

23 Q That changed every year; is that right?

24 A Slightly.

25 Q Well, in general, what were your AIP

10:38AM

1 goals?

10:38AM

2 A Typically it was -- well, I don't know. We  
3 should pull that up because that was published too.

4 Q I'm just asking you your recollection as  
5 to what your AIP goals --

10:38AM

6 A My recollection was typically there was some  
7 production, some reserve goal, production goal, safety  
8 goal, cash type return goal, those types of things.

9 Q When you say "production goal," what are  
10 you referring to?

10:38AM

11 A How much production the company was  
12 targeting to produce that year.

13 Q Is that under your particular purview --

14 A No, it's not.

15 Q -- in general?

10:38AM

16 And the next goal or one of the goals that  
17 you mentioned was -- what was the second goal you  
18 mentioned?

19 A Reserves.

20 Q What is that?

10:39AM

21 A That would be reserves added for the year.

22 Q What does that mean?

23 A Anadarko has proven reserves that they have  
24 to report on an annual basis and we would try to  
25 replace those reserves and have some growth above that

10:39AM

1 typically.

10:39AM

2 Q And what was the cash goal?

3 A I don't know. You're not showing me what  
4 the AIP targets were.

5 Q I guess I'm just asking for the

10:39AM

6 definition, I'm not asking for what it actually was  
7 in --

8 A It varied. It varied. I don't remember.

9 Q In other words, I guess my question is:

10 What is the cash goal?

10:39AM

11 In other words, is it you bring in a  
12 certain amount of cash every year, you make a  
13 certain amount of cash for the company, the company  
14 makes a certain amount of cash? What is the cash  
15 goal based on?

10:40AM

16 A If you would show me the AIP which I know is  
17 available, I could tell you exactly what it is. But I  
18 don't remember and I don't know. It varied.

19 Q Okay. One of the things that the bonus  
20 structure took into account was resource targets;  
21 right?

10:40AM

22 A No.

23 Q You know who Robert Blakeley was; right?

24 A I know the name, yes.

25 Q He was one of your direct reports;

10:40AM

1 correct?

10:40AM

2 A I'm sorry, it was David Blakeley, was it  
3 not?

4 Q I'm sorry, David Blakeley, yes. He was  
5 one of your direct reports?

10:40AM

6 A Yes, I do know David Blakeley.

7 Q He was one of your direct reports; is that  
8 right?

9 A Yes.

10 Q And Mr. Blakeley testified that if a group 10:40AM  
11 missed its resource target, it would negatively  
12 affect the bonus for people in that group. Is that  
13 incorrect?

14 A I would say that's not actually accurate.

15 Q What is inaccurate about it? 10:41AM

16 A That it would depend on what the reasons for  
17 that was, what the activities had been for the year,  
18 what the capital available was because capital moved  
19 around. So there was lots of different reasons that  
20 would make that not true.

10:41AM

21 Q Okay. So were resource targets taken into  
22 account at all in the bonus structure?

23 A In the AIP bonus structure, no.

24 Q And that's the bonus structure that you  
25 used; right, the AIP bonus structure?

10:41AM

1 A Correct. 10:41AM

2 Q Did Mr. Blakeley use an AIP bonus

3 structure?

4 A Yes, he did.

5 Q Your testimony under oath is that when 10:41AM

6 Mr. Blakeley says that the resource target was

7 missed -- if it were missed, it would negatively

8 affect the bonus for that group is wrong; right?

9 A No, I'm saying that it's not completely

10 accurate. 10:41AM

11 Q Is it partially accurate?

12 A Again, it depends on the rationale for why

13 they missed the resource target.

14 Q But my question is broader. The resource

15 target is part of this structure for the bonus; 10:42AM

16 right?

17 A No. The AIP bonus was not based on the

18 resource -- anything to do with resources.

19 Q So if they missed the resource target for

20 certain reasons, it may negatively affect the bonus 10:42AM

21 structure; is that correct?

22 A There is a possibility that it would impact

23 the bonus structure.

24 Q Under what circumstances would missing the

25 resource estimate negatively impact the bonus 10:42AM

1                   I, LYNNE M. LEDANOIS, a Certified  
2 Shorthand Reporter of the State of California, do  
3 hereby certify:

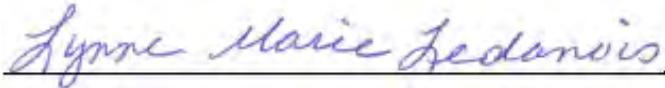
4                   That the foregoing proceedings were taken  
5 before me at the time and place herein set forth;  
6 that any witnesses in the foregoing proceedings,  
7 prior to testifying, were duly sworn; that a record  
8 of the proceedings was made by me using machine  
9 shorthand which was thereafter transcribed under my  
10 direction; that the foregoing transcript is a true  
11 record of the testimony given.

12                  Further, that if the foregoing pertains to  
13 the original transcript of a deposition in a Federal  
14 Case, before completion of the proceedings, review  
15 of the transcript [ ] was [x] was not requested.

16                  I further certify I am neither financially  
17 interested in the action nor a relative or employee  
18 of any attorney or party to this action.

19                  IN WITNESS WHEREOF, I have this date  
20 subscribed my name.

21 Dated: OCTOBER 27, 2022

22  
23  
24 

25                  LYNNE MARIE LEDANOIS

CSR No. 6811

## **Exhibit 12**

1 IN THE UNITED STATES DISTRICT COURT  
2 FOR THE SOUTHERN DISTRICT OF TEXAS  
3 HOUSTON DIVISION

4 -----x  
5  
6 In re ANADARKO PETROLEUM Civil Action No.  
7 CORPORATION SECURITIES 4:20-cv-00576  
8 LITIGATION

9 -----x  
10  
11  
12 REMOTE VIDEOTAPED DEPOSITION BY VIRTUAL ZOOM OF  
13 JAMES KLECKNER  
14 Friday, October 14, 2022

15  
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20  
21 Reported By: Lynne Ledanois, CSR 6811  
22 Job No. 5421318  
23  
24  
25

1           They also included looking at strategies           4:00PM  
2           that could enhance Anadarko's growth trajectory by  
3           looking at major acquisitions or divestments in key  
4           business units.

5           Q       And how did Shenandoah fit into that           4:00PM  
6           process?

7           MS. JENSEN: Objection, vague.

8           THE WITNESS: Shenandoah fit into that  
9           project just like any other project we had. A file  
10          was created based off of multiple scenarios and an           4:00PM  
11          expected outcome case. And it was run in the  
12          portfolio as a project that we went forward with and  
13          invested in.

14          It was run as a project that we sold down  
15          interest or promoted. Then it was run as a project           4:00PM  
16          we didn't go forward in.

17          So very much like many other investment  
18          opportunities where we're pulling in and pulling out  
19          and varying investment opportunities to determine  
20          what the optimal output is.                                   4:01PM

21          BY MS. ROSENBERG:

22          Q       Now, you referred -- there was some slides  
23          earlier and Ms. Jensen asked you some questions that  
24          referred to the term "exit strategy" for Shenandoah.

25          So can you explain why Anadarko would have           4:01PM

1 discussions about, quote/unquote, exit strategy 4:01PM  
2 while the appraisal program was still ongoing?

3 A Yes.

4 MS. JENSEN: Objection to form.

5 THE WITNESS: As the portfolio model 4:01PM  
6 changes with time and, for instance, as new  
7 opportunities evolve such as the U.S. onshore  
8 unconventional plays, we had three very strong  
9 performing onshore plays that were low risk, high  
10 economic return that were demanding more capital to 4:01PM  
11 fund.

12 And as that became more clearly modeled in  
13 the portfolio over months and months and in this  
14 case years, the allocation of capital needed to go  
15 to those types of projects that would add superior 4:02PM  
16 returns and superior investment opportunities.

17 So we continually looked at what scenarios  
18 were there that we could allocate more resources to  
19 projects like that that were far superior than other  
20 ones and that was the goal of the executive 4:02PM  
21 committee was to allocate people and capital  
22 resources to deliver the best return for  
23 shareholders.

24 And we did that continuously. And that  
25 could mean advancing some projects or looking at 4:02PM

1 exit strategy in other projects.

4:02PM

2 BY MS. ROSENBERG:

3 Q Did Anadarko determine at any time while  
4 you were at the company that Shenandoah was not  
5 going to be commercial viable?

4:02PM

6 MS. JENSEN: Objection to the extent it  
7 calls for speculation.

8 THE WITNESS: No. I left in 2016 in  
9 August and I believe that was through Shen 5, and  
10 Shen 6 was still to be drilled.

4:02PM

11 BY MS. ROSENBERG:

12 Q Did Anadarko ever decide to pursue an exit  
13 strategy for Shenandoah while you were at the  
14 company?

15 MS. JENSEN: Objection, asked and  
16 answered.

4:03PM

17 THE WITNESS: We discussed exit  
18 strategies, but we never decided to pursue an exit  
19 strategy.

20 BY MS. ROSENBERG:

4:03PM

21 Q You mentioned that you left the company  
22 after Shen 5 but before Shen 6 was drilled; is that  
23 right?

24 A Yes, I would need to go back and look at the  
25 date exactly that Shen 5 was completed.

4:03PM

1 Q Did you have any involvement in the AFE 4:03PM  
2 for the Shen 5 well?

3 A Yes.

4 MS. JENSEN: Objection, vague.

5 BY MS. ROSENBERG: 4:03PM

6 Q Can you explain what an AFE is?

7 A Application for expenditure.

8 Q And what involvement did you have in the  
9 AFE for the Shen 5 well?

10 A The project was moving -- I should say the 4:04PM  
11 overall scope of Shenandoah had been transitioning  
12 from the exploration into the development team and in  
13 the organization I was leading at the time, we had the  
14 operations development teams for all of the Gulf of  
15 Mexico. 4:04PM

16 So the team -- the development team under  
17 Darrell Hollek initiated the AFE and it came up  
18 through my organization, my final approval before Al  
19 Walker's versus prior to that, exploration up  
20 through Bob Daniels. 4:04PM

21 Q And was an AFE for Shen 5 also submitted  
22 to the Shenandoah partners?

23 A Yes.

24 Q And were you involved in that process as  
25 well? 4:04PM

1 A Not directly. 4:05PM

2 Q Do you remember what the reaction was from  
3 the Shenandoah partners to the AFE for Shen 5?

4 MS. JENSEN: Objection, calls for  
5 speculation. He just testified that he wasn't 4:05PM  
6 involved.

7 THE WITNESS: We obtained approval. There  
8 was no -- I don't recall any controversy at all.

9 BY MS. ROSENBERG:

10 Q You were asked a few questions about 4:05PM  
11 reserves. I believe Ms. Jensen used the term  
12 "reserves."

13 Did Anadarko ever book reserves for  
14 Shenandoah?

15 A No. 4:05PM

16 Q And the charts that you were shown earlier  
17 today showing amounts of millions of barrels of oil  
18 equivalent, are those resource estimates internal?

19 MS. JENSEN: Objection, vague, leading.

20 THE WITNESS: We never released -- or I 4:05PM  
21 shouldn't say never, but we as a principle did not  
22 release resource ranges about any projects that  
23 were, you know, highly on the front end of  
24 expiration.

25 We did release information such as STOIP, 4:06PM

1 I, LYNNE M. LEDANOIS, a Certified  
2 Shorthand Reporter of the State of California, do  
3 hereby certify:

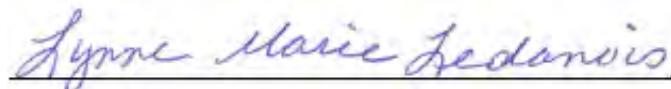
4 That the foregoing proceedings were taken  
5 before me at the time and place herein set forth;  
6 that any witnesses in the foregoing proceedings,  
7 prior to testifying, were duly sworn; that a record  
8 of the proceedings was made by me using machine  
9 shorthand which was thereafter transcribed under my  
10 direction; that the foregoing transcript is a true  
11 record of the testimony given.

12 Further, that if the foregoing pertains to  
13 the original transcript of a deposition in a Federal  
14 Case, before completion of the proceedings, review  
15 of the transcript [ ] was [x] was not requested.

16 I further certify I am neither financially  
17 interested in the action nor a relative or employee  
18 of any attorney or party to this action.

19 IN WITNESS WHEREOF, I have this date  
20 subscribed my name.

21 Dated: OCTOBER 27, 2022

22  
23  
24 

25 LYNNE MARIE LEDANOIS

CSR No. 6811

## **Exhibit 13**

1 IN THE UNITED STATES DISTRICT COURT  
2 FOR THE SOUTHERN DISTRICT OF TEXAS  
3 HOUSTON DIVISION

4 -----x  
5  
6 In re ANADARKO PETROLEUM Civil Action No.  
7 CORPORATION SECURITIES 4 : 20-cv-00576  
8 LITIGATION

9 -----x  
10  
11  
12 REMOTE VIDEOTAPED DEPOSITION BY VIRTUAL ZOOM OF  
13 ROBERT ALVIN WALKER  
14 Thursday, October 20, 2022

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23  
24 Reported By: Lynne Ledanois, CSR 6811  
25 Job No. 5378979

1           sands that led to 2 billion barrels of production.

2           Q     You told me that you don't see any mention  
3       of Shenandoah 3 in the October 27th, 2015 press  
4       release; correct?

5           A     I see one sentence related to the third  
6       appraisal well at Shenandoah.

7           Q     You understand the third appraisal refers  
8       to Shenandoah 4; correct?

9           A     I believe that to be the case based upon our  
10      prior discussion. I can't say I can tell you that  
11      from a factual reading of that sentence, but that's  
12      the only well that's referenced in this press release.

13          Q     So I take it if Shen 3 wasn't mentioned in  
14      this press release, the company never told investors  
15      in this press release that Shen 3 was wet; correct?

16          A     I don't recall what we told them during the  
17      earnings call. The press release is not an  
18      all-encompassing body of information.

19                 The following earnings call, which  
20      included Q&A, there may have been more and likely  
21      were more discussions about the success to date and  
22      what we believed to be the potential of the  
23      Shenandoah area.

24                 But this press release only relates to the  
25      well that's referenced here.

1                   MR. DROSMAN: Move to strike as  
2 nonresponsive.

3                   Q I'll ask the question again. Actually,  
4 I'll reread it to you.

5                   So I take it if Shen 3 was not mentioned  
6 in this press release, the company never told  
7 investors in this press release that Shen 3 was wet;  
8 correct?

9                   A Can you tell me when Shen 3 was concluded  
10 and could it have been in a prior quarter so,  
11 therefore, it would have been irrelevant to this  
12 quarter?

13                  Q Sir, I ask the questions. Okay? And my  
14 question is --

15                  A I understand. I'm just telling you it could  
16 have been that that well was drilled in the prior  
17 quarter and it wouldn't have been reported in this  
18 quarter.

19                  I can only tell you based upon what I see  
20 is the reference to the well that was drilled and  
21 completed during the quarter.

22                  Q So my question is: So I take it if Shen 3  
23 was not mentioned in this press release, the company  
24 never told investors in this press release that  
25 Shen 3 was wet; correct or incorrect?

1           A     The well may have been drilled in a prior  
2       quarter. I don't know and don't recall in the  
3       earnings call that followed the press release the  
4       discussion that included all of the success or lack  
5       thereof to date. I would be happy to look at that,  
6       but I don't recall it.

7                   Again, the press release is not intended  
8       to be the only communication with an investor.

9                   MR. DROSMAN: Move to strike as  
10      nonresponsive.

11           Q     Did the company tell investors in this  
12       press release that the resource range had been  
13       reduced because of the discovery of a north/south  
14       fault?

15           A     I don't recall during the earnings call what  
16       we may have included in the commentary associated with  
17       it.

18                   But discussing resource ranges, I'm sure  
19       you've heard others previously say that we don't  
20       give resource ranges to expectations. So,  
21       therefore, not -- in this case it would be typical  
22       that we wouldn't discuss resource ranges because we  
23       just never did.

24                   MR. DROSMAN: Move to strike as  
25       unresponsive.

1 Q Did the company tell investors in this  
2 press release that the resource range had been  
3 reduced because of the discovery of the north/south  
4 fault?

5 A In this press release, is that the question?

6 Q Yes.

7 A I don't see evidence of that in this press  
8 release, no.

9 Q Did the company tell investors in this  
10 press release that Shenandoah had technical  
11 challenges?

12 A Well, but that would be any well has  
13 technical challenges.

14 Q Did the company tell investors in this  
15 press release that Shenandoah had technical  
16 challenges?

17 A No, because every well has technical  
18 challenges.

19 MR. DROSMAN: Move to strike everything  
20 after no as nonresponsive.

21 Q Did the company tell investors in this  
22 press release that Shenandoah had potential  
23 execution risk?

24 A No, that would be a given for an investor to  
25 understand that during an exploratory evaluation

1 period.

2 MR. DROSMAN: Move to strike everything  
3 after "no" as nonresponsive.

4 Q Were you told that after this press  
5 release that investors had lots of questions about  
6 Shenandoah from analysts?

7 A I don't recall that.

8 Q I'm going to show you what's already been  
9 marked as Plaintiff's 386 for identification.

10 If you refresh your browser, you should be  
11 able to see Plaintiff's Exhibit 386. Let me know  
12 when you see a document bearing an exhibit sticker.

13 A I have it. This is from -- pardon me, this  
14 is a note from Chris Champion to Debbie Murphy.

15 Q I would like to direct your attention to  
16 the bottom email. Do you see it's from John  
17 Colglazier, sir?

18 A Correct.

19 Q It's dated October 27th, 2015; right?

20 A Correct.

21 Q And you received this particular email,  
22 didn't you?

23 A It would appear as such, yes.

24 Q And the subject was "Tonight's calls."

25 Do you see that?

1                   So any particular well might not be  
2 relevant. It's really what we're seeing  
3 geologically from the information that's being given  
4 to us.

5                   MR. DROSMAN: Move to strike as  
6 nonresponsive.

7                   Q     Do you recall that before you reviewed the  
8 transcript, I asked you, did you tell investors on  
9 October 28th, 2015 that a success case for Shen 3  
10 was finding oil?

11                  And you responded: I don't know. I need  
12 to review the transcript.

13                  A     I do.

14                  Q     After reviewing the transcript, did you  
15 see anything on October 28th, 2015 where you told  
16 investors that a success case for Shen 3 was finding  
17 oil?

18                  A     What we reported on and what was reflected  
19 in the transcript are results for that quarter.

20                  Q     Did you tell investors on October 28th,  
21 2015 that a success case for Shen 3 was finding oil?

22                  A     The results for that quarter was what we  
23 discussed. We also talked about what we thought to be  
24 the opportunity associated with development, including  
25 all wells that had been drilled to date.

1 Q Did you tell investors on October 28th,  
2 2015 that no oil was found in Shen 3?

3 A We told investors what we had learned from  
4 the four wells that we had drilled to that date.

5 MR. DROSMAN: Move to strike as  
6 nonresponsive.

7 Q Did you tell investors on October 28th,  
8 2015 that Shen 3 was wet?

9 A In this particular quarter we reported on  
10 the results for that quarter and what we had found  
11 from the four wells that had been drilled to that  
12 point.

13 Q So did you tell investors on October 28th,  
14 2015 that Shen 3 was wet?

15 A We reported on the results for that quarter  
16 and what we had learned from all four wells, including  
17 Shen 3, that had been reported at that point in time.

18 All four wells in terms of what we thought  
19 was ahead of us and the additional wells that we  
20 might be incurring.

21 Q On the October 28th, 2015 investor  
22 conference call, did you tell investors that there  
23 was a major north/south fault in Shenandoah?

24 A I don't see anything in the transcript that  
25 would say that we did.

1                   But again, we don't provide range  
2 estimates as a part of our drilling activities for  
3 this well or any other well or any other opportunity  
4 associated with exploration. We just didn't do it.

5                   MR. DROSMAN: Move to strike everything  
6 after "we did" as nonresponsive.

7                   Q     Did you tell investors that the Shenandoah  
8 resource range had been reduced because of the  
9 discovery of the north/south fault when you spoke to  
10 them on October 28th, 2015?

11                  A     We did not communicate ranges, so therefore,  
12 by definition we did not.

13                  Q     Did you tell investors that the resource  
14 range for the Shenandoah oil field had decreased  
15 after Shen 3 when you spoke to investors on  
16 October 28th, 2015?

17                  A     We reported on the 28th our results from all  
18 four wells, including the most recent success and what  
19 we believed to be the opportunities in front of us  
20 which we thought at that time depending upon how the  
21 wells 5, 6 and eventually 7 would be drilled before we  
22 could make a commercial decision.

23                  Q     On October 28th, 2015 when you spoke to  
24 investors, did you tell investors that the resource  
25 range for the Shenandoah oil field had decreased

1 after Shen 3 was drilled?

2 A I answered that earlier by saying we don't  
3 give resource ranges.

4 MR. DROSMAN: Move to strike as  
5 nonresponsive.

6 Q Did you tell investors on October 28th,  
7 2015 that the resource range for the Shenandoah oil  
8 field had decreased after Shen 3 was drilled?

9 A One more time, we do not give resource  
10 ranges for any exploration of oil and so by  
11 definition, we did not communicate a resource range  
12 for anything associated with Shenandoah.

13 MR. DROSMAN: Move to strike everything  
14 after "by definition" as nonresponsive.

15 Q Did you tell investors that Shenandoah had  
16 technical challenges when you spoke to them on  
17 October 28th, 2015?

18 A No. Every well was a technical challenge,  
19 so by definition it would not be unique.

20 MR. DROSMAN: Move to strike everything  
21 after "no" as nonresponsive.

22 Q Did you tell investors Shenandoah had  
23 potential execution risk when you spoke to investors  
24 on October 28th, 2015?

25 A No, again, because every opportunity

1       associated with exploration has inherent risk. It's a  
2       part of why an investor understands our business.

3                    MR. DROSMAN: Move to strike everything  
4       after "no" as nonresponsive.

5                    I'm going to show you what we'll mark as  
6       an exhibit. Hold on one second.

7                    I'll show you what's been marked as  
8       Plaintiff's Exhibit 420 for identification. It  
9       should be available on your browser if you refresh  
10      it.

11                  (Exhibit 420 was marked for identification  
12      by the court reporter.)

13                  THE WITNESS: Give me the tab number  
14      again, sorry.

15                  BY MR. DROSMAN:

16                  Q       I'm sorry. What is your question?

17                  A       What exhibit am I looking for again?

18                  Q       You're looking at Exhibit 420. There  
19      should be a bright yellow sticker that says 420 on  
20      it.

21                  Do you see that?

22                  A       There it is. These things don't come down  
23      sequentially. So I'm sorry to keep looking for it.

24                  This is the Form 4 again?

25                  Q       Sorry, what is your question?

1 A I'm looking at Form 4; is that what you're  
2 asking me?

3 Q I'm just asking if you see a document with  
4 an exhibit sticker that says 420 on it?

5 A I just want to be sure. I see an  
6 Exhibit 420 and I see a Form 4.

7 Q And Plaintiff's Exhibit 420 is a Form 4;  
8 correct?

9 A It would appear from what I'm looking at for  
10 that to be true.

11 Q It was filed with the United States  
12 Securities and Exchange Commission; is that right?

13 A That's correct.

14 Q The name on this Form 4 is Walker, R.A.;  
15 right?

16 A Correct.

17 Q That's you; correct?

18 A That is me.

19 Q And it has transactions from November 5th,  
20 2015 to November 6th, 2015; correct?

21 A Correct.

22 Q And those are your transactions; correct?

23 A Those are cashless exercises of options,  
24 correct.

25 Q You acquired stock on 11/5/2015 for zero

1                   were going to use the wellbore from to produce.

2                   That's why it's called a keeper well.

3                   Q       I'm just asking you: Who in development  
4                   told you that --

5                   A       I don't recall -- I don't recall.

6                   I'm sure the person that prepared the AFE  
7                   might have had some idea. If you want to go back  
8                   over the AFE and see who's on it, they would have  
9                   been the people proposing the keeper well.

10                  Q       Was Shen 3 drilled as a keeper well?

11                  A       No. It was in the exploration stage and a  
12                  smaller, cheaper diameter pipe would have been  
13                  drilled.

14                  Something about the information here,  
15                  there was a basis by which they drilled these as  
16                  keeper wells, which would suggest the developer team  
17                  had some confidence that we could be actually  
18                  leading into a development that was commercial.  
19                  Otherwise, we wouldn't have proposed them as a  
20                  keeper well.

21                  MR. DROSMAN: Move to strike everything  
22                  after "no" as nonresponsive.

23                  Q       Did you review the AFE for Shen 5?

24                  A       I don't recall. I do see from here this was  
25                  reviewed by the entire executive committee, which

1 apparently from, again, the slide it looks like both 5  
2 and 6 were proposed as keeper wells, design wells.

3 So by definition if we all looked at it,  
4 we all were considering the fact that these were  
5 more expensive wells to drill as keeper wells.

6 Q Did you approve the AFE for Shen 5?

7 A I don't recall.

8 Q You told me it would be very unusual for  
9 you to approve an AFE; correct?

10 A It would be unusual, it wouldn't be -- it  
11 would be typical from the standpoint if we were over  
12 budget on a well, it may require me to have to approve  
13 it.

14 Typically the amount of capital that was  
15 delegated down whether it was exploration and  
16 development and being sufficient to drill a well,  
17 it's only if there was additional drilling calls,  
18 days on location, something exceeded the original  
19 AFE that was approved by someone else.

20 But typically we get into environments  
21 where we're looking at these kinds of expenses.  
22 This would have been a broader discussion with the  
23 entire executive committee to be sure that we all  
24 were in agreement that we had something that makes  
25 sense.

1                   So here the fact that someone in the  
2 development team is proposing a keeper well for 5  
3 and 6, they are obviously seeing something from the  
4 reservoir that gave them encouragement that we were  
5 on our way to a commercial capability with the  
6 reservoir.

7                   MR. DROSMAN: Move to strike --

8                   THE WITNESS: Again, I would defer to the  
9 people who wrote the AFE and tell you that obviously  
10 the people writing the AFE who had signed the AFE  
11 must have had some intellectual appreciation for why  
12 they were at this point moving from exploration  
13 wells to keeper wells.

14                  MR. DROSMAN: Move to strike everything  
15 after "it would be unusual" as nonresponsive.

16                  I'm going to show you the next exhibit.

17                  I'm showing you what's been marked as  
18 Plaintiff's Exhibit 421 for identification. If you  
19 refresh your browser, it should be available to you.

20                  (Exhibit 421 was marked for identification  
21 by the court reporter.)

22                  THE WITNESS: I've got it.

23 BY MR. DROSMAN:

24 Q You see that Plaintiff's Exhibit 421 has a  
25 heading "Authorization for Expenditure" on it;

1 correct?

2 A I do see that, yes.

3 Q You see that the heading -- the project  
4 name is Walker Ridge 51 Number 4.

5 Do you see that?

6 A I do.

7 Q Do you understand that to be Shen 5?

8 A I believe that to be Shen 5. Again, as our  
9 prior conversation, there's nothing on the AFE that  
10 points to it being Shen 5.

11 Q And you understand that you approved this  
12 particular AFE, didn't you?

13 A The document says I approved it, but when I  
14 go to the signature block, I don't see anywhere where  
15 it was approved and executed.

16 But this document in its -- on its face  
17 would look like it had come to me -- it was  
18 recommended and it had to come to me for approval  
19 and that was done on February 1st of 2016.

20 Q When you say "that was done," you mean you  
21 approved the Shen 5 AFE on February 1st, 2016?

22 A No, I'm saying that's what this document  
23 would lead you to believe.

24 Q Do you have any reason to believe that you  
25 did not approve the Shen 5 AFE on February 1st,

1 2016?

2 A The only thing that gives me rise to a  
3 question is I don't know why this was not -- shown in  
4 the signature block's execution.

5 Staying with the AFE if you want for a  
6 minute, you can see the people there on the project  
7 team being both exploration and development people.  
8 These are the people that prepared the AFE. These  
9 are the people that proposed this well as a keeper  
10 well.

11 MR. DROSMAN: Move to strike as  
12 nonresponsive.

13 Let's go ahead and take a break. It's  
14 been about an hour and 40 minutes.

15 THE VIDEOGRAPHER: We're off the record.  
16 It's 4:37 p.m.

17 (Recess taken.)

18 THE VIDEOGRAPHER: We're back on the  
19 record. It's 4:53 p.m.

20 MR. DROSMAN: I'm going to show you what's  
21 been marked as Plaintiff's Exhibit 422 for  
22 identification.

23 (Exhibit 422 was marked for identification  
24 by the court reporter.)

25 BY MR. DROSMAN:

1                   I, LYNNE M. LEDANOIS, a Certified  
2 Shorthand Reporter of the State of California, do  
3 hereby certify:

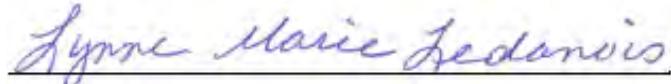
4                   That the foregoing proceedings were taken  
5 before me at the time and place herein set forth;  
6 that any witnesses in the foregoing proceedings,  
7 prior to testifying, were duly sworn; that a record  
8 of the proceedings was made by me using machine  
9 shorthand which was thereafter transcribed under my  
10 direction; that the foregoing transcript is a true  
11 record of the testimony given.

12                  Further, that if the foregoing pertains to  
13 the original transcript of a deposition in a Federal  
14 Case, before completion of the proceedings, review  
15 of the transcript [ ] was [x] was not requested.

16                  I further certify I am neither financially  
17 interested in the action nor a relative or employee  
18 of any attorney or party to this action.

19                  IN WITNESS WHEREOF, I have this date  
20 subscribed my name.

21 Dated: OCTOBER 27, 2022

22  
23  
24 

25                  LYNNE MARIE LEDANOIS

CSR No. 6811

## **Exhibit 14**

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION

In re ANADARKO PETROLEUM ) Civil Action No.  
CORPORATION SECURITIES ) 4:20-cv-00576  
LITIGATION )  
----- )

## VIRTUAL VIDEOCONFERENCE VIDEO-RECORDED

DEPOSITION OF MARK L. ZAJAK

Wednesday, November 2, 2022

## Remotely Testifying from Houston, Texas

Stenographically Reported By:

Hanna Kim, CLR, CSR No. 13083

Job No. 5466667

25 | PAGES 1 - 187

1 accountant and continued my career through the title  
2 of experienced manager.

3 Q. And when did you leave employment with  
4 Arthur Andersen?

5 A. April 2002. 10:37:29

6 Q. And was your next position at KPMG?

7 A. It was.

8 Q. Okay. And was that in 2002?

9 A. Yes.

10 Q. Okay. And can you identify for me the 10:37:47  
11 positions that you held during your employment at  
12 KPMG?

13 A. Senior manager, audit partner, SEC  
14 reviewing partner, and then sector leader for oil  
15 and gas. 10:38:11

16 Q. Okay. And when did you become an audit  
17 partner at KPMG?

18 A. 2006.

19 Q. And you testified that you were an SEC  
20 reviewing partner; is that correct? 10:38:24

21 A. Correct.

22 Q. And what was involved with that position?

23 A. That is a second reviewer of registrant.  
24 It's a -- a requirement by the PCOB to perform  
25 second reviews. 10:38:41

1 Q. And you also testified that you were a  
2 sector leader oil and gas. What was involved  
3 with -- in that position?

4 A. That's primarily a marketing position.

5 Q. Did it indicate any specialized expertise 10:38:58  
6 in the oil and gas area?

7 A. I spent a fair amount of my career in oil  
8 and gas and energy, generally speaking.

9 Q. And when did you leave employment from  
10 KPMG? 10:39:20

11 A. It was early part of 2021.

12 Q. And why did you leave employment from  
13 KPMG?

14 A. This was 2020, the COVID period. In  
15 November, I was a -- a victim of a domestic assault 10:39:46  
16 and I needed to step away. And so I retired from  
17 the firm shortly thereafter.

18 Q. Okay. So it's correct that your departure  
19 from KPMG did not have anything to do with your work  
20 on the Anadarko engagement; is that correct? 10:40:07

21 A. Nothing to do with Anadarko.

22 Q. Okay. And your -- your current business  
23 is Cooper CPA Group; is that correct?

24 A. Yes.

25 Q. While it may be obvious, can you just 10:40:25

1 briefly describe what the nature of the business of  
2 Cooper CPA Group is?

3 A. It is a -- I would describe it as a --  
4 a -- as a boutique consulting and tax firm.

5 Q. Okay. And does Cooper CPA Group do any 10:40:37  
6 work for Occidental Petroleum?

7 A. It does not.

8 Q. And does Cooper CPA Group do any work with  
9 KPMG?

10 A. It does not. 10:40:52

11 Q. Now, is it correct that Anadarko was a  
12 client of KPMG during your employment with KPMG;  
13 correct?

14 A. It was.

15 Q. Okay. And that included the years 2013 to 10:41:11  
16 2017; right?

17 A. Yes.

18 Q. And you were an audit partner during that  
19 period of time; right?

20 A. I was. 10:41:28

21 Q. And did you have a role in connection with  
22 KPMG's engagements with Anadarko?

23 A. During -- just to clarify, during 2013 to  
24 '17, or maybe clarify your question, please.

25 Q. Ye- -- yes, during that time period. 10:41:51

1           A. Yeah, during 2013 to 2017, I was the lead  
2 audit partner for Anadarko.

3           Q. Okay. And what were your responsibilities  
4 as the lead audit partner for Anadarko?

5           A. To participate in the planning and leading      10:42:06  
6 the execution of the external audit of Anadarko.

7           Q. And that included signing engagement  
8 letters with Anadarko?

9           A. Yes.

10          Q. Okay.    10:42:30

11           MR. SOMMERS: Let's have marked as the  
12 next exhibit a document dated March 31, 2013. It  
13 begins with production numbers APC-00772153.

14           (Zajac Deposition Exhibit 478 was marked  
15 electronically.)    10:42:52

16           MS. BASSIOUNY: This document has been  
17 introduced as Exhibit 478.

18 BY MR. SOMMERS:

19           Q. Mr. Zajac, let me know when you see that  
20 exhibit.    10:43:10

21           A. I've pulled the exhibit up.

22           Q. Okay. Do you recognize this exhibit?

23           A. I do.

24           Q. And what do you recognize it to be?

25           A. I recognize it to be the engagement letter      10:43:35

1 between KPMG and Anadarko Petroleum.

2 Q. And if you look at the page that has a  
3 production number that ends in '2165, can you  
4 confirm that you were the KPMG partner who signed  
5 this letter?

10:44:10

6 A. Yes, that's my signature.

7 Q. Okay.

8 MR. SOMMERS: And if I can mark as the  
9 next exhibit, there's a cover sheet, and then  
10 there's a letter dated March 28, 2014. And the  
11 document begins with production APC-01395406.

10:44:31

12 (Zajac Deposition Exhibit 479 was marked  
13 electronically.)

14 MS. BASSIOUNY: This document has been  
15 introduced as Exhibit 479.

10:44:45

16 THE WITNESS: I have the exhibit up.

17 BY MR. SOMMERS:

18 Q. Thank you.

19 And, Mr. Zajac, do you recognize this  
20 exhibit?

10:45:05

21 A. I do.

22 Q. And what do you recognize it to be?

23 A. It appears to be a amendment to the  
24 engagement letter.

25 Q. Okay. And you signed this letter at

10:45:20

1 page 2; correct?

2 A. I did.

3 Q. And Appendix I to this exhibit reflects  
4 the estimated fees --

5 (Interruption in audio/video.) 10:45:37

6 THE COURT REPORTER: Excuse me, if you  
7 could start your question over, counsel.

8 MR. SOMMERS: Okay.

9 BY MR. SOMMERS:

10 Q. Appendix I to this exhibit reflects the 10:45:44  
11 estimated fees for the 2014 audit; correct?

12 A. Yes.

13 Q. Okay. And is it correct that other than  
14 as specified in this letter in Appendix I, the  
15 provisions of the prior exhibit that we looked at, 10:46:07  
16 478, governed KPMG's engagement with Anadarko for  
17 the 2014 audit?

18 A. I -- I didn't look at the date on the  
19 prior exhibit, but it would be normal course that we  
20 would have an engagement letter for each respective 10:46:27  
21 year that we were under -- we were auditing  
22 Anadarko.

23 Q. Okay. And I can represent to you that the  
24 date on -- of the prior exhibit, which you're free  
25 to call up, was March 21, 2013. 10:46:44

1 CERTIFICATE OF REPORTER  
2

3 I, Hanna Kim, a Certified Shorthand  
4 Reporter, do hereby certify:

5 That prior to being examined, the witness  
6 in the foregoing proceedings was by me duly sworn to  
7 testify to the truth, the whole truth, and nothing  
but the truth;

8 That said proceedings were taken before me  
9 at the time and place therein set forth remotely via  
10 videoconference and were taken down by me in  
11 shorthand and thereafter transcribed into  
12 typewriting under my direction and supervision;

13 I further certify that I am neither  
14 counsel for, nor related to, any party to said  
15 proceedings, not in anywise interested in the  
16 outcome thereof.

17 Further, that if the foregoing pertains to  
18 the original transcript of a deposition in a federal  
19 case, before completion of the proceedings, review  
20 of the transcript [x] was [ ] was not requested.

21 In witness whereof, I have hereunto  
22 subscribed my name this 3rd day of November, 2022.

23  
24  


25 Hanna Kim, CLR, CSR No. 13083

## **Exhibit 15**

Page 1

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION

**IN RE ANADARKO PETROLEUM  
CORPORATION SECURITIES LITIGATION**

Remote, videotaped deposition of ROBERT MERRILL, Ph.D., taken pursuant to Notice, was held via videoconference, commencing December 7, 2022, at 10:12 a.m. Central Time, on the above date, before Amanda McCredo, a Court Reporter and Notary Public in the State of New York.

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1 account, how did you -- how did you do that sort of  
2 work as a one-person shop?

3 A There are plenty of opportunities to find  
4 or to get well data. And that's the first part. If  
5 I needed seismic data, then you have to purchase  
6 seismic data.

7 Q Okay.

8 But you're not the one drilling the wells?

9 A No, no. I would not be the one drilling  
10 the wells.

11 Q Okay.

12 Okay. Why don't we go back to page 1 of  
13 your report, and I'll go back to marching through  
14 and asking you questions about it.

15 A All right.

16 Q So --

17 MS. JENSEN: Ben, before -- Ben, sorry.

18 So we'd like to take a 15-minute break in  
19 about 15 minutes. So just wanted to give you  
20 that heads-up. I didn't want to spring that on  
21 you.

22 MR. GRUENSTEIN: That's fine. So at  
23 11:00 Central?

24 MS. JENSEN: That would be 10 o'clock  
25 Central -- no, 11:00, I'm sorry. You're right.

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1           My apologies.

2           MR. GRUENSTEIN: Okay. Well, that's fine.

3           I'm not going to keep an eye on the clock.

4           So at some point if you just --

5           MS. JENSEN: I'll remind you. I just -- I  
6           didn't want to spring it on you.

7           MR. GRUENSTEIN: And is that -- do you want  
8           that at a regular cadence or for this -- you  
9           just need a 15-minute break --

10          MS. JENSEN: Fifteen-minute break in 15  
11          minutes.

12          MR. GRUENSTEIN: Okay. We'll do that.

13          MS. JENSEN: Okay.

14          BY MR. GRUENSTEIN:

15          Q       So let's look at paragraph 2.

16          Do you see that? Do you see where we are,  
17          Dr. Merrill?

18          A       Yes.

19          Q       You talk about -- in the second-to-last  
20          line, you use the words "commercial viability" and  
21          "producible resource size."

22          What is your understanding of the phrase  
23          "commercial viability"?

24          A       "Commercial viability" means the ability to  
25          produce hydrocarbons from a reservoir at -- produce

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1 hydrocarbons at a -- with a value that exceeds the  
2 investment. In other words, you're making money on  
3 it.

4 Q Okay.

5 And during an appraisal project, does a  
6 company typically know whether a play is or is not  
7 commercially viable?

8 MS. JENSEN: Objection to the extent it  
9 calls for speculation.

10 A I think that the best answer for that is  
11 there is a wide range of uncertainty at that point.

12 BY MR. GRUENSTEIN:

13 Q And is it right that the appraisal project  
14 typically is meant to reduce that -- the size of the  
15 uncertainty so that a decision can ultimately be  
16 made about commercialization?

17 MS. JENSEN: Again, objection to the extent  
18 it calls for speculation.

19 A That is the purpose of the appraisal  
20 project, though.

21 BY MR. GRUENSTEIN:

22 Q Okay.

23 So I just want to -- so that we're on the  
24 same page -- literally and figuratively -- if we go  
25 to page 65, you have a glossary. And you have a

Page 30

1 definition of "commercial oil field" as being "an  
2 oil field and/or gas field judged to be capable of  
3 being profitable by producing sufficient net income  
4 to recover all development capital and operating  
5 costs."

6 So is that kind of roughly the same as  
7 commercially viable?

8 A Yes.

9 Q Is it -- is it actually the same --  
10 basically the same definition?

11 MS. JENSEN: Objection to form. Vague.

12 A That would be -- on page 65, it is the  
13 definition of a commercial field, yes.

14 BY MR. GRUENSTEIN:

15 Q Okay.

16 And this is -- is this the same as the  
17 definition that you have in your mind when you use  
18 the term "commercially viable"?

19 A Commercially -- commercially viable means  
20 that it might -- that that -- there's uncertainty as  
21 to whether it's going to be a commercial field  
22 still.

23 Q Okay.

24 And is that because "commercial field,"  
25 your definition is that it's been judged to be

1 capable.

2           But you're saying "commercially viable,"  
3 there's still uncertainty about it.

4           Is that correct?

5       A    At --

6       MS. JENSEN: Objection to the extent it  
7 misstates.

8       A    At the beginning -- at the beginning of all  
9 this, there is uncertainty.

10 BY MR. GRUENSTEIN:

11 Q      Okay.

12       So in paragraph 4, you reference your  
13 experience in the deepwater GOM.

14       A    Yes.

15       Q      What experience specifically are you  
16 referring to?

17       A    I'm including my experience at Unocal as  
18 the chief geologist, as well as some of the time I  
19 was at Samson.

20       Q      Okay.

21       And are there specific projects that you  
22 can name that you're referring to here?

23       A    The -- I'll go back to what I said earlier.  
24 Unocal was involved with the St. Malo project, with  
25 the Mad Dog project. So I had some oversight in

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1       that P10 to P90 ratio should have been in the 10 to  
2       45 range.

3           Q     And what features of this particular field  
4       do you think should have created more uncertainty?

5           A     Recovery factor, porosity. Those are the  
6       two in terms of the calculation of resource.

7           Q     Okay.

8                   And why should those have been, in your  
9       view, more uncertain?

10          A     Porosity refers to the volume of  
11       hydrocarbons that can be contained.

12                   And if we look at the porosity in the  
13       drilled wells now, Shen 3 -- this is before the  
14       class period -- Shen 3 porosity is in the 17,  
15       18 percent range.

16                   Shen 2, Shen 4 are closer to 20 percent.

17                   So now we know that there is a porosity  
18       difference within that -- within that field.

19                   Considering the recovery factor, we don't  
20       know what the recovery factor is going to be.  
21       Anadarko was using, I think, 20 to 35 percent  
22       recovery factor.

23                   Now, the work of Shotts, in his work with  
24       the RCT team and the modeling, suggested that there  
25       may be even a 5 percent recovery factor in there.

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1 So that 5 percent recovery factor should have been  
2 considered in that distribution.

3 Q And about recoverable resources?

4 A That -- that recovery factor applies  
5 directly to recoverable resources.

6 Q Okay.

7 How about the presence of vaulting, how  
8 does that impact the structural uncertainty?

9 A Dozens of vaulting reflects on the ability  
10 of a well -- actually, I should -- excuse me, let me  
11 just back up.

12 The presence of faulting will  
13 compartmentalize the reservoir and impact the  
14 drainage area of a particular well.

15 Q And why do you view that as -- during the  
16 class period, as a structural uncertainty as opposed  
17 to a structural certainty?

18 A There were maps existing within Anadarko  
19 that showed no faults. When my analysis of the  
20 material -- even before the class period, my  
21 analysis of the data that was available to me  
22 indicated that, in the area of high confidence in  
23 the seismic data, there were faults. And those  
24 faults should have extended into the area of lower  
25 confidence.

1 Q And --

2 A The presence of faults was documented.

3 Q Okay.

4 And what level of certainty was it  
5 documented with?

6 A What level of certainty was the resource  
7 documented with or the faults?

8 Q The faults.

9 A My analysis of the data indicated they were  
10 faults, absolutely that they were faults. So let's  
11 say I'm 90 percent confident that they were faults.

12 Q Okay.

13 And were the people in development 90 -- at  
14 Anadarko 90 percent confident of particular faults?

15 A That's pure speculation. That's complete  
16 speculation. I can't -- I can't say that.

17 Yes, the development team, Rodriguez and  
18 others, did see faults. As to their certainty, I  
19 can't comment.

20 Q And again, why do you refer to these as  
21 structural uncertainties as opposed to structural  
22 certainties?

23 MS. JENSEN: Objection; asked and answered.

24 A I think I've answered that question.

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1 BY MR. GRUENSTEIN:

2 Q Well, why don't you tell me again why --  
3 why is there still uncertainty in the recoverability  
4 factor if you think that there were necessarily  
5 faults?

6 A The uncertainty --

7 MS. JENSEN: Objection.

8 A The uncertainty is how many faults were  
9 there; were those faults sealing, laterally sealing.

10 BY MR. GRUENSTEIN:

11 Q And without knowing answers to those  
12 questions, is there still a range of possible  
13 outcomes or was there still a range for possible  
14 outcomes?

15 A There's always a range of possible  
16 outcomes.

17 Q What do you mean by that?

18 A What I mean is that the impact of a  
19 particular fault or the impact of multiple faults,  
20 how many faults are there. You recognize in the  
21 area of the seismic where there's slightly less  
22 confidence in the -- that there is data there. That  
23 portion of the seismic volume. There's uncertainty  
24 in the placement of the faults, where they fit. So  
25 that -- and we're looking at the seismic data.

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1           Well, then when we drill the wells, now we  
2 get some certainty in terms of, well, this -- you  
3 know, this well penetrated -- this well has a fault  
4 in it, this well has a fault in it, that well has a  
5 fault in it.

6           And then you look at Shen 4 and you have  
7 two wells very close together and there's  
8 significant faulting in the core and log data and  
9 well data.

10          Q       And as you -- or as they continued to drill  
11 appraisal wells at Shen, even when they drilled a  
12 well, did uncertainty still remain?

13          A       Uncertainty still remained.

14           Look at the distance between Shen 2 and  
15 Shen 3. That's 2.3 miles. How many faults are in  
16 between? There's over -- over a half mile distance  
17 between Shen 2 and Shen 4. How many faults are in  
18 between there? That's the uncertainty.

19          Q       And how do you answer those questions?

20           MS. JENSEN: Objection; vague.

21 BY MR. GRUENSTEIN:

22          Q       How does one answer those questions?

23          A       We're working under uncertainty. So we  
24 have to -- we estimate -- and it gets back to some  
25 of the things I mentioned earlier. Is there a fault

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1 Q And doesn't that depend in large part about  
2 what the upside is going to be at the end as to  
3 whether you can produce the field?

4 MS. JENSEN: Objection --

5 A That's a --

6 MS. JENSEN: -- to form.

7 Again, please pause before you answer.

8 THE WITNESS: Right.

9 A It all depends upon the amount. As I've  
10 said before, it all depends on how much of a  
11 reservoir can be drained by a particular well.

12 BY MR. GRUENSTEIN:

13 Q But the commercial viability, are you  
14 referring to the viability for individual wells or  
15 for the entire Shenandoah field?

16 A The entire Shenandoah field.

17 Q And is it your view that as the appraisal  
18 project went forward, the commercial viability of  
19 the field was decreased?

20 MS. JENSEN: Objection; asked and answered.

21 A What I would say is between Shen 1 and Shen  
22 2 and Shen 4, it became -- each well indicated that  
23 there was likely more disruption of the reservoir  
24 than there was from the previous one. In other  
25 words, Shen 4 really demonstrated significant

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1 effects of faulting in that particular fault. So  
2 what happened -- how -- what did the other faults  
3 look like? I can't speak to that.

4 BY MR. GRUENSTEIN:

5 Q Okay.

6 A There were no wells through those faults.

7 Q And based on that, you think that the  
8 resource range should have decreased over time,  
9 correct?

10 A I didn't say the resource range.

11 MS. JENSEN: Objection; foundation.

12 A I didn't say resource range.

13 BY MR. GRUENSTEIN:

14 Q What did you say? Well, let me take that  
15 back.

16 It says -- well, you said in (a) Shen's  
17 resource size shrank.

18 A That's based on after each individual well  
19 was drilled.

20 Now, if I have -- if I have a project that  
21 I can complete with two wells -- and I'm not talking  
22 about Shenandoah. This is strictly outside that --  
23 if I have a project that will produce all of the  
24 hydrocarbons with one or two wells, I have not got a  
25 large investment. I could produce those, maybe.

1           Now, if I have a series of faults in there  
2 and it's going to require me to drill five or six  
3 wells, and I'm going to produce the same amount of  
4 hydrocarbons, it's not as economic as the previous  
5 example.

6           Q     Okay.

7           So is your opinion that the Shenandoah  
8 field became less economic to produce as time  
9 progressed?

10          A     I don't think I'm speaking as to the  
11 commercial -- I don't have the numbers in terms of  
12 the net present value of this particular field. I'm  
13 talking about the scientific data and the technical  
14 data that I've looked at.

15          Q     Okay.

16          But you did speak here in terms of  
17 commercial viability. So are you expressing an  
18 opinion as to whether Shenandoah was a commercially  
19 viable field at any point during the class period?

20          A     It was unknown at any time during the class  
21 period.

22          Q     Okay.

23          And why do you say that?

24          A     We don't know how many wells are going to  
25 be drilled, we don't know how much the drainage area

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1 for each well is, we don't know if we needed to  
2 have -- if it was a strong water dry or if it was a  
3 gas expansion reservoir. There are lots of  
4 uncertainties there, and I was not looking at those  
5 engineering parameters.

6 Q Okay.

7 What sort of information would you need in  
8 order to determine whether Shenandoah was a  
9 commercially viable project?

10 MS. JENSEN: Objection; beyond the scope.

11 The witness just answered as to the engineering  
12 information, and he's just testified that he  
13 was looking at the geoscientific data and  
14 information.

15 A I believe I've answered that. I don't --  
16 I'm not -- I can't answer that question, because I  
17 don't have that information and that was not the  
18 purpose of my study.

19 BY MR. GRUENSTEIN:

20 Q Okay.

21 Let's continue on into the section 5,  
22 that's introduction to Shen. You say around  
23 two-thirds of the way down, "Geologists,  
24 geophysicists, and reservoir engineers work together  
25 to assess a prospect's resource size and

1       commerciality."

2                  Do you see that?

3       A      Yes.

4       Q      So you fit yourself in with geologists?

5       A      I put myself into the geologist category,  
6 yes.

7       Q      Okay.

8                  And what role would geophysicists and  
9 reservoir engineers play in assessing a prospect's  
10 producible resource size and commerciality?

11      A      I think I've said earlier, geophysicists  
12 look at the rock property's data and how that  
13 affects -- the rock properties and how those rock  
14 properties affect the seismic signals.

15                  A simple -- very simple algorithm there  
16 would be seismic data is recorded in time in terms  
17 of how many seconds. Rock property -- one rock  
18 property -- that is velocity of sound in that  
19 rock -- and that's in feet per second.

20                  So if I multiply feet per second times  
21 seconds, that's the feet. So that is the depth  
22 conversion process of seismic data by the  
23 geophysicists, and they're using the rock properties  
24 to do that.

25      Q      And the reservoir engineers?

1                   testified that it was in 2014.

2                   MS. JENSEN: Right. 2014. And you just  
3                   said 2013.

4                   MR. GRUENSTEIN: Yeah, but -- okay. I  
5                   think -- I think the record should be clear and  
6                   is clear that he was talking about  
7                   ConocoPhillips pulling out from the Coronado in  
8                   2014 and that the statement that was made was  
9                   in 2013.

10                  MS. JENSEN: Actually, I think the  
11                  statement of 2 to 4 billion was in 2014.

12                  But in any event, we don't need to --

13                  MR. GRUENSTEIN: That -- that's actually an  
14                  interesting question, then.

15 BY MR. GRUENSTEIN:

16 Q                Because in your report, Dr. Merrill, it  
17                says "Following the drilling of the first appraisal  
18                of Shen 2 in March 2013, Anadarko indicated the Shen  
19                basin was a 2 to 4 billion-dollar opportunity."

20                Was the statement in 2013 or 2014?

21 A                I would have to check on that. I can say  
22                that, as a consequence of that statement -- as a  
23                consequence of that statement, Ernie Leyendecker was  
24                invited to speak to the American Association of  
25                Petroleum Geologists.

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1           Q     In paragraph 22, you talk about -- in the  
2 second sentence -- the second line uses the word  
3 "successful."

4                 Is successful -- what does it mean for a  
5 well to be successful, in your mind?

6           A     Paragraph 22?

7           Q     Paragraph 22.

8           A     Successful, in industry parlance, means  
9 that "found hydrocarbons."

10                 So, as I say here -- describe each new well  
11 as successful even if no hydrocarbons were found,  
12 that's what was being said, apparently.

13           Q     What are you relying on for your view that  
14 successful -- that a well can only be successful if  
15 hydrocarbons are found?

16           A     My experience. Why would I drill a  
17 200 million-dollar well if I don't expect to find  
18 hydrocarbons?

19           Q     Well, are wells ever drilled for reasons  
20 other than to find hydrocarbons?

21           A     Stratigraphic wells are drilled for  
22 reasons, but they're not drilled on structure. So,  
23 they're drilled for stratigraphy.

24           Q     And what does stratigraphy mean?

25           A     Stratigraphy means what are the formations

1       that I'm going to encounter.

2           Q     And if a stratigraphic well provides  
3     information that is useful to a project, could that  
4     be deemed successful?

5           MS. JENSEN: Objection; speculation.

6           A     The stratigraphic well is drilled with no  
7     intention of finding hydrocarbons.

8     BY MR. GRUENSTEIN:

9           Q     And if it finds additional data, it could  
10    still be deemed successful?

11           MS. JENSEN: Objection; speculation.

12           A     Not within the industry parlance of the oil  
13    and gas.

14           Q     You then say "telling the market that Shen  
15    was right within the range of expectations even as  
16    its resource size shrank."

17           When you say "resource size shrank," you  
18    mean the internal resource size of the company?

19           A     That refers to the internal resource.

20     BY MR. GRUENSTEIN:

21           Q     And when the -- as you understand it, when  
22    it says telling the market that Shen was right  
23    within the range of expectations, what is that  
24    referring to?

25           A     That's referring to the internal estimates

1 of Anadarko.

2 Q Do you know what the current -- what's  
3 currently going on with the Shen field?

4 MS. JENSEN: Objection; scope, irrelevant,  
5 relates to a time post class period.

6 A I am aware what's going on, but it's not  
7 relevant to this study because this happened  
8 significantly after the class period.

9 BY MR. GRUENSTEIN:

10 Q Okay.

11 But you know that it's currently being  
12 developed?

13 MS. JENSEN: Objection.

14 I'm going to object to this entire line of  
15 questioning as outside of the scope of  
16 Dr. Merrill's report and irrelevant to the time  
17 period in this case.

18 A And that's where I was going to go with my  
19 comment.

20 BY MR. GRUENSTEIN:

21 Q Okay.

22 A Outside the scope of my report.

23 Q You say in paragraph 22 that with each  
24 well -- you say, "commerciality was in doubt."

25 Again, just to be clear, you said earlier

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1       that you're not opining that the Shen field was not  
2       commercial; is that correct?

3           A       What I'm saying is --

4           MS. JENSEN: Objection.

5           Hold on a second. This is beyond the  
6       scope. And just to clarify, that's what  
7       Dr. Merrill said previously.

8           There is a difference, Ben, I think,  
9       between what he's opining versus beyond the  
10      scope of his report. I just want to make that  
11      clear.

12          MR. GRUENSTEIN: Well, I just want to know  
13       what "commerciality was in doubt" means. Since  
14       they're words in his report, I think that's  
15       within the scope.

16          A       From my looking at the geological and  
17       technical data, it's unclear how many wells were  
18       going to be needed to be produced to produce any  
19       hydrocarbons. We had, during the -- by the time --  
20       by the time -- by the end of the class period, there  
21       was one well that contained no hydrocarbons. We had  
22       evidence of significant disruption of the reservoir  
23       laterally. We didn't know how these -- how these  
24       wells -- the bearing of these wells on -- how many  
25       wells ultimately were going to be drilled, what kind

1 of production systems were going to be required.  
2 All these uncertainties. As I said, I'm just  
3 looking at the scientific and geological data and  
4 the technical data.

5 BY MR. GRUENSTEIN:

6 Q Okay. So let's continue going through your  
7 report.

8 Let's continue in your report --

9 MS. JENSEN: And Ben, can we take a break  
10 in five minutes?

11 MR. GRUENSTEIN: I think we should be able  
12 to.

13 MS. JENSEN: Okay.

14 BY MR. GRUENSTEIN:

15 Q Let's go to page 8. In paragraph 24  
16 around -- it looks like around 10 lines down, you  
17 say "The data from Yucatan 1 negatively impacted the  
18 resource estimates for Shen."

19 What's your basis for that?

20 A The data in Shen 1 [sic] did not confirm  
21 any connection with Shenandoah.

22 Q You mean Yucatan 1?

23 A Yucatan 1, I meant, yes.

24 Q Okay.

25 So that negative --

1 A And Yucatan 2 certainly confirmed that.

2 Q Okay.

3 So when you say "negatively impact the  
4 resource size for Shen," you're meaning -- you mean  
5 the Shen field?

6 A That would have been the Shen basin at that  
7 point.

8 Q The Shen basin, okay.

9 And then at the bottom of the page, the  
10 second-to-last sentence is "Anadarko abandoned the  
11 Shen project in 2017 as noncommercial after  
12 presenting its discovery as one of the most  
13 significant discoveries in the Gulf of Mexico."

14 What do you mean there by "noncommercial"?

15 A What I mean there is that Anadarko decided  
16 not to develop it because -- and why they decided  
17 not to develop it, I can't say. Probably had  
18 something -- and I can speculate, but I'm not going  
19 to speculate as to why they exited.

20 Q So when you say they abandoned it as  
21 noncommercial, you're not attributing any belief to  
22 Anadarko that Anadarko thought it was not  
23 commercial?

24 A They wouldn't have abandoned it if they  
25 thought it was commercial.

1 Q Are you suggesting that oil companies  
2 develop every potentially commercial project?

3 MS. JENSEN: Objection; argumentative.

4 A All I'm saying is that you can either sell  
5 a field or abandon a field. Anadarko abandoned the  
6 field.

7 BY MR. GRUENSTEIN:

8 Q Okay.

9 And anything more than that would be  
10 speculation?

11 A Yes.

12 Q Okay.

13 The sound of my papers means that we're  
14 kind of moving -- moving apace, so...

15 You also mentioned in paragraph 24 that  
16 four faults were identified in the lower Wilcox  
17 C-zone.

18 Do you know whether -- or at the time that  
19 those were identified, was it known what the impact  
20 of those would be on the -- on the recoverability of  
21 oil?

22 A You're talking about the faults in Shen 3,  
23 Shen 2, and Shen 4?

24 Q I don't know. I'm looking at the line that  
25 says "four faults were identified in the lower

1 Wilcox C-zone."

2 A And what line is that? Okay, I found it.

3 That's in Shen 4.

4 Q Right.

5 A Let's go back to Shen 4.

6 Those four faults identified in the Wilcox  
7 C-zone indicated significant damage to the  
8 formation. There were damaged zones. There were  
9 the faults, there were the fractures; all of which  
10 would affect fluid flow laterally in the formation.

11 Q Okay.

12 And do you know -- did you quantify the  
13 impact that that would have on the overall resource  
14 range?

15 A I did not quantify the impact that would  
16 have on the overall resource range. It just  
17 magnified the uncertainty --

18 Q Okay.

19 A -- in my mind.

20 Q And do you know whether the existence of  
21 those faults was publicly disclosed?

22 MS. JENSEN: Objection to the call -- to  
23 the extent it calls for beyond the scope.

24 A That is beyond the scope of my report. I'm  
25 looking at the information presented to me.

1 BY MR. GRUENSTEIN:

2 Q Okay.

3 Let's go to paragraph 28. This is a list  
4 of people and their titles.

5 Where did you get this from?

6 A I got this list from the materials that I  
7 was provided in the database.

8 Q And do you know any of these people?

9 A No, I do not.

10 Q Based on their titles, would -- is there  
11 any way for you to say whether the role you played  
12 in the industry was kind of similar to the role that  
13 any of these people played?

14 Again, based on either their titles or what  
15 you got to learn about them through your work  
16 reviewing emails and deposition transcripts.

17 A Okay. That's --

18 MS. JENSEN: Hold on. Wait. Hold on a  
19 second.

20 Please, Dr. Merrill, just give me --

21 THE WITNESS: I'm trying to figure out what  
22 the significance of this is, this question.

23 MS. JENSEN: Hold on, because I was going  
24 to object that it's vague and compound.

25 A I'm a geologist. I manage geologists and

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1 you're talking about at the top of 45. I mean, it's  
2 titled "Remaining Uncertainty and Impact."

3                   Are you reading this to mean that Lea Frye  
4 knew, with certainty, that the fault between Shen 2  
5 and Shen 3 was sealing?

6                   A Well, first of all, let me go back and  
7 address the word "uncertainty" there. That's a --  
8 that's a term that's been used in the industry and  
9 referred to as uncertainty and really it's referring  
10 to the risk of a certain statement.

11                  In other words, there is a risk of  
12 compartmentalization, and that will affect well  
13 count and performance. In other words, there is a  
14 risk there for compartmentalization. And that's the  
15 difference between how I normally use uncertainty  
16 and it actually is commonly also referred to as  
17 risk.

18                  But as a geologist, I'm used to seeing the  
19 word "uncertainty," and obviously Lea Frye is, as  
20 well.

21                  Q So I guess I'm a little confused.

22                  Are you saying that Lea is saying there is  
23 a risk of compartmentalization or that --

24                  A Yes.

25                  Q Okay.

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1           A     She's saying there is a risk of  
2 compartmentalization. And as an engineer, a  
3 reservoir engineer, she's saying if there is risk --  
4 if that risk -- if that risk is actual, that's going  
5 to affect my well count and performance of each well  
6 that I put into the record.

7           Q     Right.

8               So, look, I think you're -- I'm not really  
9 sure why you're -- why you needed to correct  
10 anything because I think what you said was accurate.

11              Did anyone at Anadarko determine  
12 definitively that the fault between Shen 2 and  
13 Shen 3 was sealing?

14              MS. JENSEN: I'm going to object to the  
15 editorialization.

16              And Ben, of course, the witness is entitled  
17 to clarify testimony. And particularly with  
18 some of the garbled questions that were on this  
19 transcript. So I object to that  
20 editorialization.

21              And, anyway, go ahead, Dr. Merrill.

22           A     So may I hear your question again?

23 BY MR. GRUENSTEIN:

24           Q     Sure.

25              Did anyone at Anadarko determine

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1       definitively that the fault between Shen 2 and  
2       Shen 3 was sealing?

3           A       There is no way to say definitively that it  
4       is sealing. The probability, because of the  
5       displacement along that fault, is that it is  
6       sealing. There is a probability that it's sealing.  
7       But without production data and following the fluid  
8       flows through the reservoir, there is no way to  
9       definitively say whether it is sealing.

10          Q       Okay.

11               Well, when you say there is a probability  
12       that it's sealing, what probability are you  
13       attributing to it?

14          A       I would attribute it to a 90 percent  
15       probability.

16          Q       Did anyone at Anadarko attribute a  
17       90 percent probability to the faults being sealing?

18          A       No one at Anadarko -- the reference was to  
19       the likelihood -- the likelihood of sealing. Nobody  
20       assigned a probability.

21          Q       Did anyone say that it was likely sealing?

22               MS. JENSEN: Objection to the extent it  
23       calls for speculation.

24          A       I think I answered that. And I can't  
25       speculate as to how various individuals speculated.

1 Again, that's a speculation.

2 BY MR. GRUENSTEIN:

3 Q Well, I'm trying to understand your  
4 conclusion. Your conclusion is that there was a  
5 90 percent likelihood that the fault between Shen 2  
6 and Shen 3 was sealing, correct?

7 A Yes.

8 Q And that is a conclusion that, had you been  
9 there, you could have come up with at what point in  
10 the story?

11 A After the drilling of Shen 3, because I had  
12 the seismic data indicating a fault. I saw faults  
13 in Shen 3. I saw a fault in Shen 2. So, there are  
14 obviously faults.

15 I knew the -- I knew the displacement based  
16 on the structural mapping was larger than the  
17 thickness of the reservoir. Therefore, my  
18 conclusion would be that is a sealing fault.

19 Q Okay.

20 And did anyone at Anadarko come up with  
21 that conclusion at that same time?

22 MS. JENSEN: Objection; asked and answered.

23 A I can't speculate on that.

24 BY MR. GRUENSTEIN:

25 Q Okay.

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1           If based on your conclusion there was a  
2 sealing fault between Shen 2 and Shen 3, are you  
3 opining that Anadarko should not have gone forward  
4 with the -- with continuing the appraisal process?

5           A     That's pure speculation.

6           Q     Let's go back to where we were, which was  
7 on page 46. I appreciate the clarification. I  
8 don't appreciate Rachel calling my questions  
9 garbled. Maybe they're garbled because of all the  
10 objections that are being --

11          MS. JENSEN: I don't think so. I think  
12           there were some genuinely garbled questions in  
13           there.

14          But we can move on.

15          MR. GRUENSTEIN: Okay.

16 BY MR. GRUENSTEIN:

17          Q     In paragraph 46, in the second line, you  
18 say "This overly simplistic portrayal of the  
19 resource was used to make overly optimistic  
20 statements about the resource range and the  
21 oil-water context."

22           Again, are those internal statements?

23          A     Those are internal statements, yes. And my  
24 interpretation of the geoscientific data suggests  
25 that, that they're overly simplistic.

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1           Q     We can go on to the next paragraph. You  
2 say "substantial evidence existed early on of  
3 significant faulting at Shen," and then you list out  
4 a few things. The first is MDT pressures indicated  
5 that OWC's could not be extrapolated across the  
6 field.

7                   What MDT pressures are you talking about?

8           A     There were -- the MDT tool measures the  
9 pressure of individual formations. And that tool  
10 indicated that there were different pressures in  
11 Shen 3 and Shen 2.

12          Q     Okay.

13                   So these were pressures that were  
14 identified after the drilling of Shen 3?

15          A     After the drilling of Shen 2. They already  
16 had pressures from Shen 2.

17          Q     Right.

18                   But when you're talking here about the  
19 oil-water contact, you would need them from both  
20 Shen 2 and Shen 3, right?

21          A     Yes.

22          Q     "Pressure brakes were indicating a  
23 completely broken field."

24                   What are pressure brakes?

25          A     A pressure break means that there's a

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1       seen eight different maps of Shenandoah from six  
2       different companies, two different maps internally,  
3       and the only similarity between the eight is the  
4       overall three-way shape."

5                  Do you know what he was referring to?

6       A       The overall three-way shape?

7       Q       Yeah.

8       A       I assume that refers to the overall shape  
9       with the north side being higher than the south  
10      side.

11      Q       Yeah. And he says "the only similarity  
12      between the eight is the overall three-way shape."

13                  Were there a lot of differences between the  
14      maps as you looked at them?

15                  MS. JENSEN: Objection --

16      A       They all have --

17                  MS. JENSEN: -- asked and answered.

18      A       What they're saying is without more well  
19      data, as he says later, it would be a hard task to  
20      persuade the parties to modify them based purely  
21      on -- and he's talking about the position of Shen 3  
22      here. So this is before the drilling of Shen 3.

23                  Then he goes on to say "if any north-south  
24      faulting exists that could potentially  
25      compartmentalize Shenandoah, it would represent the

1       largest risk element to appropriately appraising  
2       this project."

3       BY MR. GRUENSTEIN:

4           Q     And that means what to you?

5           A     Was there a question there?

6           Q     Yeah. You just offered that sentence, so I  
7       said "and that means what you to?"

8           A     That north-south faultings recognized  
9       between Shen 2 and Shen 3 would represent the  
10      largest risk element to appropriately appraise the  
11      project.

12                  So, saying if we have north-south faulting,  
13       we're going to have issues associated with this  
14       development program, and that's from -- that's what  
15       Jake Ramsey wrote.

16           Q     And Jake Ramsey was in what --

17           A     He was a geologist in the exploration  
18       project.

19           Q     So he recognized the concerns about these  
20       potential faults, correct?

21           A     Yes.

22           Q     And then a little lower down, you talk  
23       about Ramsey forwarding this exchange and he writes  
24       "Paints a good picture on their value of the  
25       north-south fault trending down the center of

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1 Shenandoah and how it impacts their forward  
2 planning."

3 How do you get from there to saying that  
4 this statement indicates that the threat of faulting  
5 was not a concern of exploration?

6 A I'm not saying it was not a concern of  
7 exploration. I'm saying that exploration recognized  
8 there was a risk element to this project with  
9 north-south faulting. That's what the data says and  
10 that's what these statements say.

11 Q Right.

12 But it says this statement indicates that  
13 the threat of faulting was not a concern of  
14 exploration.

15 A If we look at the maps that exploration  
16 used through this period -- this time period, they  
17 don't have these faults as a sealing -- as a  
18 significant fault.

19 I'm looking at the data now. All the  
20 data -- all the maps that were produced during this  
21 time period.

22 Q Okay.

23 But you do recognize -- when you say that  
24 Ramsey recognized that if a north-south faulting  
25 exists, that could potentially compartmentalize

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1 Shenandoah, it does sound like he recognized the  
2 importance of the threat of faulting; is that  
3 correct?

4 A Yes. I would like to follow that up with  
5 the next statement that Ramsey said in exchange with  
6 Trautman it "paints a good picture on their value of  
7 north-south faulting trending down the center of  
8 Shenandoah and how it -- how it impacts their  
9 forward planning."

10 "Their" is the point. They're talking, I'm  
11 sure -- I'm going to speculate, but I'll leave it up  
12 to you what "their forward planning" means because  
13 here Ramsey is talking to his manager.

14 Q But you recognize that it would be  
15 speculation to read into "their" any significance?

16 A Speculation for me, yes, because it was not  
17 stated.

18 Q Okay.

19 So let's go to 61. You say in 61 "Anadarko  
20 exploration management continued to require the use  
21 of a simple, unfaulted, laterally continuous  
22 structural model."

23 Do you mean that exploration management  
24 required that exploration use that unmap --  
25 unfaulted map?

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1 MS. JENSEN: Objection --

2 A No.

3 MS. JENSEN: -- misstates --

4 THE WITNESS: Go ahead, I'm sorry.

5 MS. JENSEN: Misstates the report.

6 A What I can say is that the exploration  
7 group used a simple, unfaulted, laterally continuous  
8 model throughout this part of the -- throughout this  
9 time period that we're talking about in this  
10 paragraph.

11 BY MR. GRUENSTEIN:

12 Q Right.

13 And who they require -- who else did they  
14 require use it? Or are you just saying that they  
15 continued to use this map?

16 A They were trying to use a single -- that --  
17 the statement was made -- excuse me.

18 Well, I don't have the -- I don't have the  
19 statement, but at some point it was indicated that  
20 Anadarko would use a single map to present to  
21 partners and that map was a simple, unfaulted,  
22 laterally continuous structure at this point in  
23 time.

24 Q And do you know what that point in time  
25 was?

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1       A     This was -- well, here I'd say later. No  
2     later than August 2014 predevelopment personnel on  
3     Shen objected to the no-fault model used by  
4     exploration and identified as evidence of a fault in  
5     Shen 2.

6       Q     So then you say in the next sentence after  
7     where we were -- so the second sentence of 61 --  
8     despite evidence of faulting, adherence to a  
9     best-case scenario led to highly optimistic, public  
10    statements that exaggerated the likelihood of  
11    successful development, resource size, and value.

12           When you say "public statements," what are  
13    you referring to?

14       A     I refer back to what I said earlier about a  
15    2 to 4 billion opportunity with a thousand feet of  
16    pay.

17       Q     And what is your basis to say that using an  
18    unfaulted map is what led Anadarko to make the  
19    public statement about 2 to 4 billion dollars? How  
20    do you make that link?

21       A     Let's go back to Shotts's conclusion from  
22    his modeling that there was an 83 percent change in  
23    the -- between having a heavily faulted model and an  
24    unfaulted base case.

25           In other words, Shotts's model indicates

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1 that, with faults, there's going to be a smaller  
2 resource size.

3 Q Sorry, just one second.

**4** (Pause in proceeding.)

5 MS. JENSEN: Ben, that's fine if you need a  
6 minute, but why don't we just go ahead and go  
7 off the record.

8                   MR. GRUENSTEIN: No, that's fine, we can  
9 continue.

10 MS. JENSEN: Okay, okay.

11 BY MR. GRUENSTEIN:

12 Q Okay.

13 You then refer, in the next sentence, to  
14 the no-fault model used by exploration?

15 A Yes.

16 Q And what do you understand the no-fault  
17 model to be?

18       A     No-fault model refers to maps that were  
19 published or maps that were made by the Anadarko  
20 team. Like this map of the December 2014 partners  
21 meeting on page 37, Figure 14b. That discontinuity  
22 was not recognized as a fault at that time by the  
23 exploration department.

24 Q You say in the next sentence, "My  
25 experience exploring the Gulf of Mexico leads me to

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1 conclude that the development team's structural  
2 exploration of Shen with faults was more credible  
3 than the exploration team's homoclinal structure  
4 interpretation."

5 What specifically in your experience  
6 exploring the Gulf of Mexico leads you to conclude  
7 that?

8 A The expectation that in the subsalt  
9 province, I would expect to see faults in the  
10 sediment column.

11 Q Okay.

12 And were you under the impression that  
13 exploration was saying definitively that there were  
14 no faults in this area?

15 A Well, in 2014, vice president of  
16 exploration Leyendecker criticized the development  
17 team's maps for having faults on them.

18 Q And at that stage, was it a -- was there a  
19 definitive conclusion by exploration that there were  
20 no-faults? Is that how you understood it?

21 MS. JENSEN: Asked and answered.

22 A I think I've answered that.

23 BY MR. GRUENSTEIN:

24 Q Okay. I think I have my answer.

25 I don't know if your -- did you review

1        Robert Strickling's testimony?

2           A      Did I review his testimony?

3           Q      Yeah.

4           A      Not in detail.

5           Q      Okay.

6                   So you're not familiar with how he  
7                  understood "no faults"?

8           A      No, I'm not familiar how he understood "no  
9                  faults."

10          Q      And you're not familiar with how he  
11                 understood the significance of this map?

12                MS. JENSEN: Objection; vague as to time.

13                Are we talking about at the time of his  
14                testimony when he's been prepped for a  
15                deposition or at the time?

16          BY MR. GRUENSTEIN:

17          Q      Did you understand my question?

18          A      Well, I think I answered your question  
19                about reviewing Strickling's deposition.

20          Q      Okay.

21                So you don't understand -- well, you didn't  
22                review what his understanding was of "no faults"?

23                MS. JENSEN: Objection; vague as to time.

24          A      I'm not going to speculate as to what his  
25                understanding was.

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1 BY MR. GRUENSTEIN:

2 Q Okay.

3 Given your experience with the Gulf of  
4 Mexico and the extensiveness of faults in this area,  
5 would you think that geologists in Anadarko would  
6 understand that there likely were faults in the Shen  
7 basin?

8 MS. JENSEN: Wait, hold on. Wait, you're  
9 asking him to talk about other geologists?  
10 Wait, what -- Ben, what's your question?

11 BY MR. GRUENSTEIN:

12 Q I'll reread the question.

13 Given your experience with the Gulf of  
14 Mexico and the extensiveness of faults in this area,  
15 would you think that geologists in Anadarko would  
16 understand there likely were faults in the Shen  
17 basin?

18 A I can speak from my experience. And any  
19 geologist that I was involved with -- that I was  
20 involved with, I would assume they'd have the  
21 expectation there were faults. I can't speak to  
22 Anadarko's physicians -- geologists. My expectation  
23 of the geologists that I was involved with.

24 Q If we go further down in 61, you say about  
25 Ernie Leyendecker, "Even in his deposition,

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1 Leyendecker admitted he did not include seismic data  
2 in his review of the alternative maps, and thus his  
3 review was incomplete."

4 Do you recall that testimony?

5 A I do.

6 Q And when -- what was your understanding --  
7 well, when you said that he did not include seismic  
8 data, what are you referring to?

9 A I'm referring to -- I'm referring to  
10 looking to evaluate the seismic volume independently  
11 and making an independent evaluation of the  
12 seismic -- of the interpretation on those maps.

13 Q So are you saying that he didn't review the  
14 underlying data that went into the seismic or he  
15 didn't review the seismic at all?

16 A What he is saying -- and I'll repeat -- he  
17 did not include the seismic data in his review of  
18 the alternative maps.

19 Q Okay.

20 But did he review the interpretation of the  
21 seismic data?

22 A I can't speak to that. He didn't respond  
23 to that.

24 Q Okay.

25 A He said he did not include seismic data in

1           And what is -- again, what is  
2 Mr. Leyendecker saying he looked at?

3           A     He said he did not include the seismic data  
4     in his review. That's my statement.

5           Q     Right. But he reviewed the interpretation  
6     of the seismic data.

7           A     Is that interpretation -- that  
8     interpretation was the maps. That would be  
9     interpretation.

10          Q     Okay.

11           And what -- and again, so that we're all  
12     clear, isn't that what you reviewed, the  
13     interpretation of the seismic data?

14           MS. JENSEN: Asked and answered.

15          A     I answered that. I said I looked at the  
16     seismic images that were available. I did not have  
17     access to the data volume to evaluate the data  
18     volume.

19     BY MR. GRUENSTEIN:

20          Q     Okay.

21           And -- so you're saying you did not review  
22     the interpretation of the seismic data?

23          A     I reviewed the interpretation that was  
24     presented on the seismic lines that were given to  
25     me.

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1 Q What I'm really trying to figure out is do  
2 you expect that you reviewed something more than  
3 Mr. Leyendecker did.

4 A I reviewed the seismic lines that were  
5 available to me in the Anadarko documentation. I  
6 reviewed the maps that were available in the  
7 Anadarko database. I reviewed the well data that  
8 was in the database.

9 Q But you did not review the seismic data?

10 MS. JENSEN: Objection; asked and answered.

11 A I've already answered that question.

12 BY MR. GRUENSTEIN:

13 Q And the answer is?

14 MS. JENSEN: Well, objection; asked and  
15 answered.

16 BY MR. GRUENSTEIN:

17 Q And you didn't review the seismic data?

18 MS. JENSEN: Ben, now you're harassing the  
19 witness.

20 MR. GRUENSTEIN: No, I'm just asking for a  
21 yes or no. It's not harassing. Just say no.

22 A Well, I'm not going to give you a yes or  
23 no. I'm telling you that I reviewed the seismic  
24 images that were available to me in the Anadarko  
25 database.

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1 BY MR. GRUENSTEIN:

2 Q Okay. I think I know the answer then.

3 MS. JENSEN: And, Ben, for the record, I'll  
4 state that he had access to Anadarko's entire  
5 document production.

6 BY MR. GRUENSTEIN:

7 Q When you reviewed Mr. Leyendecker's  
8 testimony, did you get a sense of why he disagreed  
9 with the -- with developments's and the partners'  
10 technical interpretation of the seismic data?

11 A That would be entirely speculation. I'm  
12 not going to go there.

13 Q Well, I'm just -- the first question is did  
14 you review that part of the testimony?

15 A Well, I read the whole testimony.

16 Q Okay.

17 A But I'm not -- but I can't speculate as to  
18 why he did what he did.

19 Q But do you recall that part of the  
20 testimony?

21 A But I can't -- I can't speak to why he had  
22 his -- how he arrived at his conclusions.

23 Q So you can't speak to whether his  
24 conclusions were well reasoned, for example?

25 MS. JENSEN: Objection --

1           A     My job --

2                 MS. JENSEN: -- argumentative.

3           A     My job in this was to evaluate the  
4 geological evidence, the geological data, and the  
5 technical data.

6 BY MR. GRUENSTEIN:

7           Q     Right.

8                 But you've testified and you included in  
9 your report several times about how certain people  
10 ignored information, correct?

11          A     We knew there was -- we could see  
12 conflicting information. Who ignored it, generated  
13 it, that's a different question.

14          Q     Okay.

15                 Well, but you have statements in here, in  
16 this report, that exploration ignored certain  
17 things.

18                 Right?

19          A     Exploration continued to use a no-fault map  
20 for some time regardless of the knowledge of faults.  
21 That's what I could speak to.

22          Q     And would you not characterize --

23          A     The fact that -- the fact that they used a  
24 map with no faults suggests that they were ignoring  
25 the other evidence.

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1           Q     But did you review testimony where some of  
2     them explained why they rejected that other  
3     evidence?

4           MS. JENSEN: Objection; vague.

5           A     Again, that would be speculation on my part  
6     as to why -- I'm looking at my understanding of the  
7     geologic data and the technical data.

8 BY MR. GRUENSTEIN:

9           Q     But why do you assume that they ignored the  
10    evidence as opposed to considered it thoroughly and  
11    rejected it?

12          MS. JENSEN: Objection to form.

13          A     I can't speak to as to whether they  
14    considered it thoroughly and rejected it.

15          All I can speak to is the evidence, the  
16    data that I saw, the information I saw, during much  
17    of this early period, showed no faults in the  
18    exploration mapping.

19 BY MR. GRUENSTEIN:

20          Q     So it sounds like you can't say whether  
21    exploration ignored the data or considered it and  
22    rejected it?

23          MS. JENSEN: Already answered the question.

24          A     All I can say is what exploration put out  
25    there.

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1                   MR. GRUENSTEIN: Okay.

2                   Why don't we take a short break. Maybe  
3                   until 10 to the hour -- no, we are at 10 to the  
4                   hour. The top of the hour. Ten minutes.

5                   MS. JENSEN: Yup, let's say 15?

6                   MR. GRUENSTEIN: Okay.

7                   MS. JENSEN: Five after.

8                   MR. GRUENSTEIN: Fine.

9                   THE VIDEOGRAPHER: We're off -- we're off  
10                  the record. The time is 2:51 p.m.

11                  (Recess taken.)

12                  THE VIDEOGRAPHER: We're back on the  
13                  record. The time is 3:08 p.m.

14 BY MR. GRUENSTEIN:

15 Q        Okay, welcome back.

16                  Let's go to paragraph 62 -- actually, the  
17                  Figure 13 after 62.

18                  Are you there?

19 A        I'm here.

20 Q        So we discussed earlier, I believe, that  
21 this was -- the bottom figure is a map from  
22 December 2014, correct?

23 A        That's correct.

24 Q        And this -- is it correct it shows the  
25 faults between Shen 2 and Shen 3?

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1           A     It's the same map as the one that was  
2 produced earlier that I have, figure --

3           Q     I think it's on 37.

4           A     Yeah, 37. Yes. It's the same map as  
5 Figure 37. That map was presented at the 2014  
6 partners meeting.

7                 And the map shown here -- we're now in  
8 June 2016, and it's the same map in terms of the  
9 position of the fault.

10          Q     Right.

11                 June 2016, I think that is -- that was a  
12 collection of lots of earlier maps that included A  
13 and B.

14                 Does that -- does that comport with your  
15 recollection?

16          A     Let's see. Let me look at the 76459  
17 versus -- they were different -- they were different  
18 documents.

19          Q     Right. But the -- I -- the reason I'm  
20 saying it is I don't think it's right to say that  
21 the bottom one is from 2016 because it's identified  
22 as, B, the December 2014 map.

23          A     I never said it was 2016. I said it was --  
24 if I said it was 2016, I misspoke. It's the  
25 December 2014 partners meeting.

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1 C E R T I F I C A T E  
2

3 I, AMANDA McCREDO, a Shorthand Reporter  
4 and Notary Public of the State of New York, do  
5 hereby certify:

6 That the witness whose examination is  
7 hereinbefore set forth was duly sworn, and that  
8 such examination is a true record of the  
9 testimony given by such witness.

10 I further certify that I am not related to any  
11 of the parties to this action by blood or  
12 marriage, and that I am in no way interested in  
13 the outcome of this matter.

14  
15   
16

17 \_\_\_\_\_  
18 AMANDA McCREDO  
19  
20  
21  
22  
23  
24  
25

## **Exhibit 16**

Page 1

1           UNITED STATES DISTRICT COURT  
2           SOUTHERN DISTRICT OF TEXAS  
3           HOUSTON DIVISION  
4           -----x  
5   IN RE: ANADARKO PETROLEUM                   Case No.  
6   CORPORATE SECURITIES LITIGATION   4:20-cv-576  
7           -----x  
8           December 16, 2022  
9           10:07 a.m. (CST)

10  
11  
12           REMOTE VIDEOTAPED DEPOSITION  
13       of LYNDON PITTINGER, held at the  
14       above time and date taken before  
15       Erica Ruggieri, RPR, CSR and Notary  
16       Public of The State of New York.

17  
18   \* \* \*

19  
20  
21  
22  
23  
24  
25

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1 MS. JENSEN: Objection,  
2 characterization.

3 A. In the scope of this  
4 case -- could you repeat the  
5 question?

6 Q. Sure. I said when you say  
7 invest, do you mean conduct further  
8 appraisal?

9 MS. JENSEN: Objection,  
10 misstates.

11 A. When I'm thinking of  
12 investing -- in the scope of this  
13 case, when I'm thinking of investing  
14 I'm thinking more of the final  
15 investment decision, the appraisal  
16 that leads up to that is a series of  
17 gathering information,  
18 interpretation and reassessment of  
19 the viability of the project. So a  
20 project can be being viable or not  
21 viable in the Exploration phase, the  
22 appraisal phase and/or the  
23 sanctioning phase or the development  
24 phase.

25 Q. So I need to make sure I

Page 25

1 understand that. I think you  
2 said -- the transcript says  
3 "separation phase" but I think you  
4 said in the "Exploration phase," the  
5 appraisal phase or the sanctioning  
6 phase?

7 MS. JENSEN: Ben, can we go  
8 off the record. I'm not able to  
9 access the real-time and there's a  
10 number of issues I think with the  
11 transcription here so let's go off  
12 the record.

13 MR. GRUENSTEIN: Okay.

14 THE VIDEOGRAPHER: Standby.  
15 The time is 10:25. We are going  
16 off the record. One second,  
17 please.

18 (Whereupon, there is a recess  
19 in the proceedings.)

20 THE VIDEOGRAPHER: The time is  
21 10:44 a.m. We are back on the  
22 record.

23 Q. Okay. Welcome back. Since  
24 we had to take a little break why  
25 don't we go back and I'll ask the

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1 question again as to what you mean  
2 by commercially unviable?

3 A. Commercially unviable is  
4 not a specific industry term. It's  
5 just to me in the context of this  
6 case, you know, commercially viable  
7 is an investment that the investor  
8 wants to proceed with.

9 Q. Okay. And you said earlier  
10 that when you are thinking of the  
11 investor you are thinking about the  
12 final investment decision; is that  
13 correct?

14 A. In the context of this case  
15 that's one of the most important  
16 decisions made, but there's also  
17 economic evaluations along the way  
18 after each well is drilled and after  
19 each major development occurs of  
20 whether the project remains viable.

21 Q. And when you say whether it  
22 remains viable, you mean whether it  
23 is an investment that the investor  
24 wants to proceed with?

25 MS. JENSEN: Objection to

1       form.

2           A. In the context of this case  
3       the -- during an appraisal program  
4       the economic process of addressing  
5       uncertainty remains essentially the  
6       same. The Rose and Associates  
7       methodology is applicable to each  
8       Exploration appraisal and  
9       development equally and, you know,  
10      therefore, the economics get revised  
11      after each well. Those economics  
12      help the investor know is further  
13      investment warranted in this.

14           Most important of the  
15      investment decisions is the final  
16      investment decision because of the  
17      magnitude of the capital being  
18      committed at that point. But the  
19      economic viability, commercial  
20      viability, which I'm equating  
21      economic measures of profitability,  
22      you know, needs to be on a  
23      risk-weighted basis commercially  
24      attractive at every stage of the  
25      process.

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1           Q. Does commercial viability  
2 bear on whether a company continues  
3 appraising a project?

4           MS. JENSEN: Objection to the  
5 extent it calls for speculation.  
6 Foundation.

7           A. In the context of this case  
8 economic valuations during  
9 exploration when they drill --  
10 before they drilled Shen-1 and  
11 economics run to justify each of the  
12 appraisal wells are all important  
13 evaluations that the expected value,  
14 the probability of weighted outcome  
15 of economic cases that have been run  
16 to capture the range of possible  
17 outcomes needs to be positive.

18           Q. So was Shenandoah  
19 commercially viable before Shen-1  
20 was drilled?

21           A. That's outside the scope of  
22 my study.

23           Q. Was it -- I'm sorry, why is  
24 it outside the scope of your study?

25           A. I just corrected myself, of

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1       wellbore and produce it to the  
2       surface rather than doing one zone  
3       by itself.

4           And those fluids would mix in  
5       the wellbore as they came together.

6           Would isolating each zone for  
7       production have a negative impact on  
8       the Shenandoah economics?

9           Yes, isolating individual  
10      zones would have a significant  
11      impact by one of two factors. One  
12      way to handle it would be to drill  
13      individual wells for every zone and  
14      that was a significant number of  
15      zones. I would have to have a  
16      document in front of me to remind  
17      exactly how many zones, but I'll  
18      skip to the next paragraph.

19           Drilling eight wells would not  
20      work for every single drainage area  
21      -- and drilling eight individual  
22      wells would not work for every  
23      drainage area across the field.

24           The other options you would  
25      have to -- would have to be to

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1 complete each individual zone and  
2 produce it to the end of the life  
3 and how that negatively will impact  
4 your economics is now you are  
5 getting production at a lower rate  
6 because you have one zone which is  
7 having more than one zone together  
8 and it takes a really long time to  
9 get that production leading to the  
10 important thing. So that impact --  
11 so that impacts your net present  
12 value by discounting the value of  
13 the production over a really long  
14 time.

15 "Question: Was this issue  
16 discussed with management?

17 "Answer: Yes."

18 Q. Do you recall that Ms. Frye  
19 also testified that Anadarko  
20 believed that Shenandoah 5 was going  
21 to be a key well in determining  
22 whether the field was going to be a  
23 major oil producing hub for APC or  
24 not?

25 A. That's outside the scope of

1 my study.

2 Q. What's outside?

3 A. I reviewed parts of her  
4 testimony. I don't recall her  
5 comment about the Shen-5.

6 Q. If she believed that Shen-5  
7 was going to determine whether  
8 Shenandoah was going to be a major  
9 oil producing hub, does that mean  
10 that she believed that Shenandoah  
11 was a commercially viable field as  
12 you define it?

13 MS. JENSEN: Objection.

14 Misstates testimony. Calls for  
15 speculation.

16 A. That's outside the scope of  
17 my study what she believed.

18 Q. Well, how about what you  
19 believed. Do you believe that if  
20 Shenandoah 5 was successful that  
21 Shenandoah could have been a major  
22 oil producing hub for Anadarko?

23 MS. JENSEN: Objection,  
24 foundation. Objection to the  
25 extent it calls for speculation.

1           A. In the scope of this report  
2 Shenandoah 5 resulted in 140 feet of  
3 pay. Yet a result in the post  
4 Shenandoah 5 resource appraisal went  
5 down substantially. It had more  
6 compartmentalization, vertical  
7 compartmentalization than any well  
8 drilled prior to that. The oil  
9 properties were significantly  
10 different and the gravity was more  
11 viscous and would have resulted in  
12 lower recovery factors.

13           And the LWC zone, the lower  
14 Wilcox C zone had 22 feet of tar and  
15 that is an extremely important data  
16 point because that demonstrates the  
17 entering of asphaltene or road tar  
18 into the reservoir prior to  
19 development so -- and that is not  
20 detectable or extremely hard to  
21 detect, you know, from well to well.

22           So, hence, that well proved  
23 that there was asphaltene deposition  
24 damage in the existing reservoir.  
25 In the documents that I have

1       encountered, reviewed since my  
2       expert report I have seen that there  
3       was a -- Brett Johnson discussed a  
4       zone in the lower Wilcox A sand in  
5       Shen-4 that had the log response of  
6       a tar zone that has a high  
7       resistivity low density response in  
8       association with drilling trouble.

9                   So once again, the development  
10      of finding tar in LWC zone in Shen-5  
11      was a large negative development  
12      despite having a 101,040 feet of net  
13      pay.

14                  Q. Are you aware of why  
15      Anadarko drilled Shen-5 and Shen-6?

16                  MS. JENSEN: Objection,  
17      compound.

18                  A. That's beyond the scope of  
19      my report.

20                  Q. You don't know what  
21      Anadarko sought to accomplish by  
22      drilling those wells?

23                  MS. JENSEN: Objection,  
24      foundation. Calls for speculation.

25                  A. That's beyond the scope of

1 factors that you are saying were  
2 left out, would the mere fact that  
3 the PIR was under the corporate  
4 threshold be enough for you to opine  
5 that Shenandoah was not commercially  
6 viable after Shen-4?

7 MS. JENSEN: Objection, vague.  
8 It also misstates the report.

9 A. In the context of this case  
10 they go together. You have a sub--  
11 a subthreshold PIR10 and then you  
12 have a -- tremendously important  
13 issues that have not been accounted  
14 for, the two of those together allow  
15 me to have a high degree of  
16 confidence that after Shen-4 it was  
17 the appraisal of further investment  
18 was uneconomic.

19 Q. Okay. And when you say  
20 that you were able to conclude that,  
21 you didn't quantify how much lower  
22 the PIR should have been had they  
23 taken into account all those  
24 additional factors, did you?

25 A. I did not quantify so I did

1 not have my own economic run. But  
2 in my 30 years of experience of  
3 doing economic evaluations it is --  
4 I am certain that inclusion would  
5 have made the economic case  
6 extremely uneconomic.

7 Q. And in your 30 years of  
8 experience when someone identifies  
9 factors that were not considered as  
10 part of a model, do oil companies  
11 typically conduct another model that  
12 does take into account those  
13 factors?

14 MS. JENSEN: Objection,  
15 foundation. Objection to the  
16 extent it that calls for  
17 speculation.

18 A. Outside of the scope of my  
19 study of what other companies do.

20 Q. Okay. Is it typical for  
21 engineers to eyeball a study and say  
22 no, that doesn't take into account  
23 additional factors without then  
24 providing a model as to what those  
25 factors should be and how they would

1 -- how they would influence the  
2 model?

3 MS. JENSEN: Objection to  
4 form. Foundation. Misleading.

5 A. In my experience,  
6 objections might, you know, might  
7 occur in review sessions where  
8 various people provided input and if  
9 someone raised an objection or a  
10 concern or requested to change an  
11 assumption, they wouldn't  
12 necessarily be obligated to come up  
13 with their own model. They could  
14 ask the person running that model to  
15 revise what they have done. But I  
16 don't think that every assessment  
17 has to have its own economic model  
18 to be valid, especially when the --  
19 when everything -- when the  
20 information is so strongly  
21 indicative of downward negative  
22 revision -- impacts on the  
23 economics.

24 Q. Are you opining as to what  
25 anyone at Anadarko knew about the

1 influence of these factors on  
2 commercial viability?

3 MS. JENSEN: Objection, vague.

4 A. I earlier mentioned the  
5 deposition of Lea Frye talking about  
6 commingling. When she was asked  
7 whether she had discussed  
8 commingling with management, she  
9 said yes. So I don't think that's  
10 for me to opine on. I just -- I  
11 look for evidence of who received  
12 the information, who is custodian of  
13 the information and whether they  
14 commented on it or not.

15 Q. Okay. How important to  
16 your opinion is it that the  
17 commercial threshold was .3?

18 A. How important. Well, the  
19 commercial threshold is -- well,  
20 which economic valuation are you  
21 referring to?

22 Q. Let me ask you perhaps a  
23 different way.

24 When you are opining as to  
25 whether Shenandoah was commercially

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1      viable, you are looking at whether  
2      the evaluations were below a PIR  
3      factor of .30, correct?

4            A. That's not correct. I'm  
5      looking at whether the PIR10 was  
6      below .3 and I'm looking at the  
7      basis of what -- of what constituted  
8      the model, what were the assumptions  
9      and what issues did they include in  
10     a reasonable balanced realistic way.

11           Q. Okay. And is .3 a common  
12     threshold across the oil and gas  
13     industry?

14           MS. JENSEN: Objection to the  
15     extent that it calls for  
16     speculation. And vague.

17           A. That's -- that's outside of  
18     my report.

19           Q. Okay. Do you know whether  
20     .3 was Anadarko's threshold for all  
21     projects?

22           A. Let's go to my report.

23           Q. Footnote 2, page 4?

24           A. Almost there.

25           MS. JENSEN: Ben, while we are

1       waiting for the witness to go to  
2       his report, it's been over an hour  
3       so I'd like to take a break after  
4       this question.

5                  MR. GRUENSTEIN: Well, maybe  
6       after just this set of questions.

7                  A. Paragraph --

8                  MS. JENSEN: I'm not sure how  
9       long that's going to take so I'd  
10      like to take a break.

11                 A. Paragraph 174, PIR10 is an  
12      important concept for understanding  
13      Shen's commerciality. PIR10 stands  
14      for Profit to Investment Ratio  
15      discounted at 10 percent. The term  
16      is widely used in the petroleum  
17      industry as an economic measure of  
18      capital efficiency. The numerator  
19      is net present value of estimated  
20      cash flows discounted at 10 percent  
21      and the denominator is net capital  
22      investment, also discounted at 10  
23      percent. The measure is used for  
24      ranking capital performance of a  
25      portfolio of investment

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1 from -- was pressure isolated from  
2 Shen-4. Shen-4 -- also Shen-4  
3 sidetrack 1. Shen-4 sidetrack 1 was  
4 pressure isolated from Shen-4 bypass  
5 core 1. Shen-4, Shen-2, Shen-1 were  
6 not in pressure -- were in pressure  
7 isolation from Shen-5. Shen-6 was  
8 in pressure isolation from Shen-5.

9           We had considerable amount of  
10 evidence for pressure isolation just  
11 based on -- and sealing faults based  
12 on the degree of pressure isolation.

13           The paragraph 49 has a quote  
14 from Rodriguez in response to that  
15 question about broken, let's see,  
16 broken up by faulting or noisy data  
17 where Rodriguez says: "I think the  
18 reservoir is completely broken as  
19 you put it."

20           Q. Let's look at paragraph 51  
21 or actually on page 22 there's the  
22 seismic data.

23           A. Yes.

24           Q. Are you qualified to review  
25 seismic data?

1           A. Could you repeat the  
2 question? One word is critical  
3 there.

4           Q. Are you qualified to review  
5 seismic data?

6           A. In the context of this case  
7 I'm not qualified to review seismic  
8 data but I have been working in an  
9 interdisciplinary environment with  
10 geophysicists and geologists for my  
11 entire career so that part of my  
12 professional work is working with  
13 geophysicists and understanding the  
14 implications of their analysis of  
15 the seismic data.

16          Q. If you look at paragraph 55  
17 you give an -- you say: "An example  
18 of a differing partner  
19 interpretation is COP's  
20 interpretation of extensive  
21 east-west faulting." And then  
22 there's a map on the next page.

23           Do you have a sense of why  
24 Conoco Phillips was mapping  
25 east-west faults when other

1   companies were mapping north-south  
2   faults?

3           A.    In the context in this case  
4   no, I don't understand -- I cannot  
5   -- I don't have an explanation for  
6   their interp- -- their analysis of  
7   the faulting.

8           Q.    Do you know whether their  
9   analysis changed over time?

10          A.    That's not a -- I just  
11   didn't focus on that issue so I  
12   don't have any memory to answer  
13   that.

14          Q.    Is it common in offshore  
15   projects for interpretations of  
16   seismic data to change over time?

17          A.    Not being a geophysical  
18   professional, that's outside the  
19   scope of my report.

20          Q.    In paragraph 56 you say,  
21   the last sentence: "This statement  
22   indicates Exploration  
23   conscientiously ignored evidence of  
24   faulting."

25                 How is it that that statement

1 indicates that Exploration  
2 conscientiously ignored evidence of  
3 faulting?

4 A. I think the one thing that  
5 stands out is the all caps THEIR and  
6 that developments work on a  
7 north-south fault trending down the  
8 center of Shenandoah was their  
9 interest and it didn't sound like --  
10 well, I'll stop there.

11 Q. Okay, so it's based on the  
12 capitalization of that word?

13 A. Yes, the emphasis.

14 Q. Did you also review  
15 Ramsey's testimony about this email?

16 A. I have no recollection of  
17 reviewing it. I might have passed  
18 over it but I must have missed it.

19 Q. Would you think that  
20 Ramsey's interpretation of the email  
21 would be relevant to considering  
22 what Ramsey meant by the email?

23 MS. JENSEN: Objection,  
24 foundation. Speculation. Ben, if  
25 you want to put testimony in front

1       of him, then do it but don't ask in  
2       isolation without giving any -- the  
3       testimony itself.

4           A.    That's outside the scope of  
5       my report.

6           Q.    You also say: "...only the  
7       development team considered it in  
8       their well planning logic."

9           So you recognize that  
10      development did recognize the impact  
11      of faulting on the project?

12           MS. JENSEN: Objection, vague  
13      as to time.

14           A.    This whole chapter is my  
15      work on trying to describe the --  
16      how Anadarko's faulting model  
17      evolved and it focused on -- most of  
18      the development there occurred based  
19      on Development's work.

20           Q.    So does that mean that  
21      Development recognized the impact of  
22      faulting?

23           A.    I read a quote earlier,  
24      paragraph 53 the quote underneath  
25      that, Browning says: "...we can't

1 assume other fault blocks have the  
2 same oil-water contact. We have to  
3 test each fault block with a well,  
4 (starting with the biggest)."

5 He's talking about how unique  
6 the properties of each fall block  
7 are going to vary and by definition  
8 the boundaries of that fault block  
9 would be sealing.

10 Q. So it sounds like  
11 development did recognize the  
12 potential impact of faulting; is  
13 that correct?

14 MS. JENSEN: I'm going to say  
15 asked and answered. Also vague as  
16 to time.

17 A. In the context of this case  
18 I'm not quite sure how expansive you  
19 are using the term "recognized."  
20 They were working on identifying  
21 fault, possible faults, and whether  
22 they fully recognized all the  
23 implications is beyond the scope of  
24 my report.

25 Q. In paragraph 63 you talk

1 about Kleckner's testimony. Have  
2 you reviewed the entirety of  
3 Kleckner's testimony?

4 A. I reviewed it quickly.

5 Those transcripts are lengthy so the  
6 word "entirety" probably no.

7 Q. You say here that: "He  
8 testified that Development's work on  
9 fault's compartmentalization was  
10 communicated to and understood by  
11 senior management."

12 And then you quote a portion  
13 of testimony where you said: "I  
14 think that risk of  
15 compartmentalization was well  
16 understood by everybody."

17 How do you get from that  
18 sentence to senior management being  
19 familiar with Development's work on  
20 fault compartmentalization?

21 A. The answer is I think this  
22 is -- the answer is made by an  
23 Executive Committee member. "I  
24 think the risk of  
25 compartmentalization was well

1 understood by everybody." I think  
2 that statement stands on its own.

3 Q. And did the work on fault  
4 compartmentalization that was done  
5 also include how to address the  
6 risks -- I'm sorry -- how to  
7 mitigate the risks of fault  
8 compartmentalization?

9 A. Would you repeat the  
10 question, please.

11 Q. Sure. You referred to  
12 Development's work on fault  
13 compartmentalization. Does that  
14 also include work on how to mitigate  
15 the risks of fault  
16 compartmentalization?

17 A. Mitigation of fault  
18 compartmentalization is beyond the  
19 scope of my report.

20 Q. Are there ways to mitigate  
21 fault compartmentalization?

22 A. My understanding in the  
23 context of this case is the most  
24 important thing about mitigating  
25 fault compartmentalization is to try

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1       when you know your reservoir is  
2       compartmentalized and you don't know  
3       how big your compartments are.

4               I think he's identifying the  
5       key issue about compartmentalization  
6       and how the uncertainty around  
7       compartmentalization unfolds when  
8       you are primarily restricted to  
9       drilling wells rather than  
10      production testing.

11          Q.   Are you aware of any of the  
12       partners who were of the view that  
13       the faulting resulted in Shenandoah  
14       being uncommercial prior to Shen-6?

15            MS. JENSEN: Objection to  
16       foundation. Objection to the  
17       extent that it calls for  
18       speculation.

19          A.   In the context of this case  
20       I do know that Conoco wanted to exit  
21       and sell their interest in the  
22       Shenandoah project after Shen-3.  
23       Let's see, there's a good  
24       discussion.

25            There's a quote from Lea Frye

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1 to McGrievy on paragraph 232:  
2 "Interesting. Dan from COP called  
3 me and wanted to chat. Based on  
4 Shen-1 pressures and the new  
5 interpretation of rafts across --  
6 rafts areas COP is concerned. He  
7 has run volume sensitivities with  
8 new maps and oil-water contact  
9 variance and is seeing in place  
10 volumes basically cut in half. They  
11 are concerned about size and  
12 commerciality."

13 Soon after that Conoco  
14 approached -- well, I don't know the  
15 details. You had Conoco want to  
16 leave the project but was unable to  
17 dispose of their interest. And you  
18 had Marathon who did leave the  
19 project.

20 Q. Do you know what led Conoco  
21 or Marathon to leave the project  
22 other than speculation?

23 A. You want me to reread the  
24 paragraph I just read you?

25 Q. No. Are you saying that

1       that's what led Conoco to try to  
2       sell its interest?

3           A.     The -- seeing the volume of  
4       oil in place cut by half is a very,  
5       very significant event.

6           Q.     And are you opining that  
7       that's what led Conoco to want to  
8       sell its interest?

9           MS. JENSEN: Objection,  
10       misstates.

11          A.     I'm not opining why Conoco  
12       left. I am identifying a major  
13       development that occurred that was  
14       mentioned by Conoco to Anadarko  
15       about their interpretation following  
16       Shen-3.

17          Q.     Okay. Just so the record  
18       is clear, you said I'm not opining  
19       why Conoco left. Conoco did not  
20       actually leave after Shen-3, did  
21       they?

22          A.     No, they didn't. They just  
23       wanted to leave.

24          Q.     In paragraph 75, towards  
25       the bottom, it's six lines -- or

1   seven lines from the bottom it says:  
2   "Relatively poor seismic imaging  
3   below salt at this depth makes it  
4   extremely unlikely that all of the  
5   barriers isolating the fault blocks  
6   could be identified before  
7   development plans are made and  
8   production begins."

9                 In that sort of situation how  
10   does an oil company typically deal  
11   with this sort of uncertainty?

12                MS. JENSEN: Objection to the  
13   extent that it calls for  
14   speculation. Foundation.

15                A. That's beyond the scope of  
16   my report.

17                MS. JENSEN: So Ben, we have  
18   been going for about an hour. Can  
19   we take a break?

20                MR. GRUENSTEIN: Yes. Just  
21   one second.

22                Q. When you say it goes beyond  
23   the scope of the report, do you mean  
24   that you don't know or you didn't  
25   look into it for this report?

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1           A. Could you repeat the  
2 question?

3           Q. Yeah. I mean my initial  
4 question was what was an oil company  
5 -- what does an oil company  
6 typically do when there's  
7 uncertainty that's a result of poor  
8 seismic imaging. You said it was  
9 outside the scope of your report.  
10 But I'm still entitled to ask the  
11 question. So do you not know?

12          A. This is in reference to the  
13 seismic data and I'm not a  
14 geophysicist. I think there are  
15 more appropriate people to ask that  
16 question of. It's outside the scope  
17 of my report.

18           MR. GRUENSTEIN: Okay. Why  
19 don't we take a break and go off  
20 the record.

21           THE VIDEOGRAPHER: Standby,  
22 please. The time is 1:29 p.m. We  
23 are going off the record. This  
24 will end media unit number two.  
25 Wait, please. And we are off the

1 far off their model was with being  
2 able to address the complexity in  
3 the field.

4 And it also shows just how  
5 totally unfaulted the eastern  
6 section was and how this oil-water  
7 contact defining the P90 case and  
8 the established, quote/unquote,  
9 established oil-water contact based  
10 on assuming continuity between  
11 Shen-2 and Shen-3 extended all the  
12 way up to the east with no  
13 interruption.

14 The complexity of this field,  
15 given what had just happened to  
16 Shen-4, pressure isolation between  
17 two wellbores 300 feet apart, yet we  
18 have -- those blocks there, the  
19 Walker bridge 52-block, that's three  
20 miles across with not a -- a -- no  
21 faulting, no disruptions.

22 Shen-4 bypass core was 300 to  
23 400 feet away from the sidetrack 1.  
24 Pressure isolation missing zones,  
25 different, even different rock type

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1 making up the -- comprising the  
2 matrix of the formation. You have  
3 in one side of the field there's  
4 tremendous complexity.

5 Exhibit 33 shows the western  
6 side of the field increasing in  
7 complexity. That's what Exploration  
8 --

9 I lost you. Okay, you are  
10 back.

11 Q. I'm always here, don't  
12 worry.

13 A. This is Exploration's  
14 admission to help complex the  
15 western part of the field is when  
16 they are constrained with data. But  
17 unconstrained with data, the entire  
18 eastern block is faultless with  
19 oil-water contact, full all the way  
20 to the eastern side of the  
21 structure. That's the -- I think  
22 what he's getting to is now we need  
23 to understand the east side of the  
24 field.

25 By analogy on the western side

1       you have this tremendous level of  
2       complexity and on the eastern side  
3       this tremendous level of simplicity.

4           Q.     And do you know how they  
5       intend to -- how Anadarko intended  
6       to understand the east side of the  
7       field?

8           MS. JENSEN:   Objection to the  
9       extent it calls for speculation.

10          A.    That's speculating and  
11       beyond the scope of my report.

12          Q.    You don't think that it  
13       drilled Shen-5 and Shen-6 in order  
14       to understand the east side of the  
15       field?

16          MS. JENSEN:   Are you saying  
17       their intention?   I'll just object  
18       to vague.

19          A.    Could you repeat the  
20       question?

21          Q.    Sure.   I said that you  
22       didn't think that the reason they  
23       drilled Shen-5 and Shen-6 was in  
24       order to understand the east side of  
25       the field?

1 MS. JENSEN: Objection to the  
2 extent it calls for speculation.

3 A. Their intent is beyond the  
4 scope of my report.

5 Q. Whose intent is beyond the  
6 scope of your report?

7 A. You are asking -- I assume  
8 you are asking me about Anadarko  
9 because Anadarko is the operator.

10 Q. Right.

11 A. Of the operation.

12 Q. So that's outside the scope  
13 of your report?

14 A. What their thinking and  
15 intent, yes, it is.

16 Q. And how about the people  
17 who work at Anadarko, that also  
18 outside the scope of your report?

19 MS. JENSEN: Objection,  
20 misleading.

21 Q. I'll ask the question  
22 again. And how about the people who  
23 work at Anadarko, was their intent  
24 also outside the scope of your  
25 report?

1           A.    What was their intent to do  
2 what?   Where Shen-5 and Shen-6 are  
3 located, is that the question?

4           Q.    Yes.

5           A.    The desires --

6           MS. JENSEN:   Object to form.

7           A.    And objectives of where  
8 they drilled their wells are beyond  
9 -- is beyond the scope of my report.

10          Q.    Okay.   Let's continue  
11 moving through your report.   So  
12 let's go to section 6.   It was  
13 appraising the Shenandoah resource  
14 starting on page 71.

15          In paragraph 168 you say:  
16 "Risk and uncertainties abound when  
17 the reservoir is almost six miles  
18 below the surface," and then you  
19 give some other characteristics.

20          Do those risks and  
21 uncertainties necessarily make a  
22 field commercially unviable?

23          MS. JENSEN:   Objection,  
24 foundation.

25          A.    Rose and Associates

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1 provides a methodology of addressing  
2 risks and uncertainties by  
3 quantifying the potential range of  
4 outcomes and establishing a method  
5 by calculating the expected value  
6 which is a risk weighted result of  
7 many potential outcomes.

8 Q. Okay. So the mere  
9 existence of these risks and  
10 uncertainties does not necessarily  
11 make a field commercially unviable,  
12 correct?

13 A. Correct.

14 Q. And as the company learns  
15 more about the risks and  
16 uncertainties, can its views on  
17 commercial viability change?

18 MS. JENSEN: Objection. Calls  
19 for speculation. Foundation. What  
20 company are we talking about?

21 MR. GRUENSTEIN: A company.

22 MS. JENSEN: A hypothetical  
23 company. I'll also object to  
24 improper hypothetical.

25 A. Are you asking, for

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1 example, given what was known after  
2 Shen-4 where both the economics are  
3 below the PIR and the economic run  
4 is leaving out many very severe  
5 technical problems with asphalt  
6 deposition and reservoir faulting  
7 with management saying they value  
8 putting zero value on the resource  
9 that somehow investments that are  
10 deemed, based on the information at  
11 the time are uneconomic going  
12 forward, that somehow something is  
13 going to happen with Shen-5 or 6 to  
14 make it economic?

15 Q. That was my question from  
16 around 15 minutes ago. But this is  
17 a different question.

18 A. The basis behind decision  
19 analysis, economic -- engineering  
20 economics and economics is based on  
21 the information at a given time the  
22 path or the option -- let's see if I  
23 can rephrase this.

24 If the economics capture the  
25 range of potential outcomes and the

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1 STATE OF NEW YORK )  
2 ss.:  
3 COUNTY OF NEW YORK )  
4 I, ERICA L. RUGGIERI, RPR and  
5 a Notary Public within and for the  
6 State of New York, do hereby  
7 certify:

8 That I reported the  
9 proceedings in the within-entitled  
10 matter, that the witness was duly sworn  
11 and the deposition accurately records  
12 the witness's testimony.

13 I further certify that I am  
14 not related by blood or marriage,  
15 to any of the parties in this  
16 matter and that I am in no way  
17 interested in the outcome of this  
18 matter.

19 IN WITNESS WHEREOF, I have  
20 hereunto set my hand this 22nd day  
21 of December, 2022.

22  
23   
24 ERICA L. RUGGIERI, RPR, CSR, CLR  
25

## **Exhibit 17**

Page 1

1       UNITED STATES DISTRICT COURT  
2       SOUTHERN DISTRICT OF TEXAS  
3       HOUSTON DIVISION  
4       Case No. 4:20-CV-576

6 IN RE: ANADARKO PETROLEUM CORPORATE  
7 SECURITIES LITIGATION

14           REMOTE VIDEOTAPED DEPOSITION of BJORN  
15 STEINHOLT, an Expert Witness, in the  
16 above-entitled action, held at the above  
17 time and place, taken before Dawn Matera,  
18 a Shorthand Reporter and Notary Public of  
19 the State of New York.

\* \* \*

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1           Q.     And you list, if I am correct,  
2 two Cobalt conference calls; do you see  
3 that?

4           A.     That is correct.

5           Q.     And did you rely upon all of  
6 those conference call transcripts in  
7 forming your opinion?

8           A.     Yes.

9           Q.     Did you look at any  
10 ConocoPhillips conference call  
11 transcripts?

12          A.     I looked at ConocoPhillips  
13 conference calls, but typically they  
14 would not discuss anything of relevance  
15 relating to Shenandoah.

16          Q.     So I take it you didn't rely on  
17 any ConocoPhillips conference calls?

18          A.     Correct.

19          Q.     And did you look at any  
20 Marathon conference call transcripts?

21          A.     I don't recall if I did or  
22 didn't. They were not the partner during  
23 the time period that I focused on the  
24 most. So I certainly did not rely on it  
25 in forming my opinions.

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1           Q.     And to be clear, when you said  
2     the time period that you focused on the  
3     most, what time period is that?

4           A.     My analysis focuses -- a lot of  
5     my analysis focuses on the, what happened  
6     when, you know, the truth was exposed to  
7     the market. In other words, what was the  
8     impact on Anadarko's stock price by the  
9     release of the alleged truth. And that  
10    occurred on May 2nd, 2017 after the  
11    market had closed. And also in the  
12    morning of May 3rd, 2017, which is when  
13    the conference call took place.

14          Q.     Just so we are all on the same  
15    page, when you say the alleged truth,  
16    what are you referring to?

17          A.     It is the truth that plaintiffs  
18    allege was concealed throughout the class  
19    period.

20          Q.     And in this case, what is that?

21          A.     The truth with respect to the  
22    commercial viability of Shenandoah.

23          Q.     Okay. And I take it you're not  
24    offering an opinion with respect to  
25    whether Shenandoah was or was not

1 commercially viable; is that fair?

2 A. That's correct, yes.

3 Q. Right. You're leaving that as  
4 a matter of proof by plaintiffs, I take  
5 it?

6 A. That's correct, yes.

7 Q. But your assumption is that  
8 plaintiffs will prove its allegations,  
9 correct?

10 A. That's correct. That's the  
11 general way of approaching this  
12 particular issue as a damage expert, yes.

13 Q. Okay. Let's try and get some  
14 base lines established here. When you  
15 say commercial viability in this context,  
16 what do you understand that to mean?

17 A. Commercial viability has to do  
18 with whether or not the economics of the  
19 Shenandoah was such that it could be  
20 pursued -- pursued in a commercially  
21 viable matter. Another, as an investment  
22 whereby you would make money on it.  
23 There are costs associated with it. And  
24 there are presumably some revenues and  
25 profits that come later on.

1                   So typically, for something to  
2 be viable, it has to, you know, you  
3 certainly need to get more money back or  
4 expect to get more money back than what  
5 you spend upfront as an investment.

6                   And then there was a threshold  
7 matter. And that is that you don't  
8 engage in this type of endeavor just to  
9 break even. There are certain threshold  
10 profits that are -- that one would  
11 expect. And if that threshold is met,  
12 then the investment is viable.

13                  Q. Now, you mentioned costs. So  
14 what, in your understanding, were the  
15 potential costs with a commercial  
16 development of the Shenandoah field?

17                  A. Well, there is, of course,  
18 initial drilling costs. We talk about  
19 the exploration well, the appraisal well,  
20 sidetrack well, bypass well. The experts  
21 can talk about the different type of data  
22 that these wells collect, and so on. But  
23 these things are very, very costly.  
24 Hundreds of millions of dollars. And of  
25 course, so you have to invest in them.

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1 And a lot of investment is upfront. And  
2 those are the costs. And of course,  
3 there are always, if you decide to  
4 sanction the field and build it out,  
5 infrastructure is all set up. Then there  
6 are, of course, the costs for operating  
7 it. But those costs are typically much  
8 less than the initial costs. But those  
9 are the costs typically in a project like  
10 this.

11 Q. In your understanding was any  
12 special type of drilling technology  
13 required for developing and exploiting  
14 the Shenandoah field?

15 MS. JENSEN: Objection.

16 Compound. Vague.

17 MR. SLIFKIN: All right. Let me  
18 fix that.

19 Q. In your understanding, was any  
20 special type of drilling technology  
21 required for exploiting the Shenandoah  
22 field?

23 A. I know that there was some  
24 discussion about what type of technology  
25 that they were, they might be using. But

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1 Shenandoah been commercially developed,  
2 in what time frame would the sale of oil  
3 have been?

4 A. It would have been a few years  
5 away, that's my understanding. But as I  
6 sit here right now, I don't know exactly  
7 when that would be.

8 Q. Okay. So you reference this  
9 document and something that Mr. Walker  
10 said.

11 Do you have any knowledge as to  
12 how those expectations with respect to  
13 the future price of oil compared to  
14 internal Anadarko expectations earlier in  
15 the class period?

16 A. I do not know. I don't have  
17 any opinions relating to that. And it's  
18 beyond the scope of what I was focusing  
19 on.

20 Q. Okay. So to come back you  
21 spoke about the alleged truth coming out.  
22 And you said in this case it's the truth  
23 with respect to commercial viability.  
24 Are you with me?

25 A. Correct.

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1           Q.     And in your understanding, at  
2 least, for the purposes of your analysis,  
3 what was the truth that came out?

4           MS. JENSEN: Objection. Asked  
5 and answered.

6           A.     Well, the specific alleged  
7 truth in this particular case relates to  
8 the suspension of appraisal activities at  
9 the Shenandoah; as well as the impairment  
10 charge that they took at the time; as  
11 well as the expenses of the drilling  
12 costs, including drilling costs -- some  
13 drilling costs that had previously been  
14 capitalized. And as well as, you know,  
15 results of the Shen-6 sidetrack well that  
16 was dry.

17          Q.     Okay. So you say that's the  
18 truth with respect to Shenandoah?

19          A.     No, that is the alleged truth.  
20 That is what plaintiffs allege in the  
21 complaint.

22           I am not here -- I am not the  
23 paid juror to determine whether or not  
24 those allegations are correct or not, but  
25 that is information that was fraudulently

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1 concealed. It was something that the  
2 company, you know, that or similar  
3 information, is something that the  
4 company should have revealed earlier.  
5 It's just an alleged truth. It's in the  
6 complaint.

7 Q. And for purposes of your  
8 analysis, when should that alleged truth  
9 have been disclosed to the market?

10 A. The misrepresentations relating  
11 to the commercial viability of the  
12 Shenandoah started on, when they filed  
13 the 10-K. So that was, I think it was  
14 after the market closed on February 20th.  
15 So it would be on February 21st, 2015.  
16 That's where you would have, there would  
17 have been some truth.

18 And my understanding is that  
19 the truth at that point in time would  
20 have been that the Shenandoah was most  
21 likely not commercially viable as of that  
22 time.

23 Q. When you say most likely, what  
24 do you mean by most likely?

25 A. Well, that is the determination

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1 of the other experts in this particular  
2 case. So most likely means that it is  
3 more than 50 percent. That's the way I  
4 read it.

5 Q. Okay. And did that, did that  
6 change during the class period, the  
7 likelihood of commercial viability?

8 A. After the Shen-4, the experts  
9 concluded, the assumption is that it  
10 certainly was not commercially viable  
11 after. So it goes from most likely to  
12 certainly not commercially viable.

13 Q. And this analysis of most  
14 likely shifting to certainly not, in your  
15 understanding, was that known within  
16 Anadarko during the class period?

17 MS. JENSEN: Objection, to the  
18 extent that it calls for speculation.  
19 Objection, beyond the scope.

20 A. Could you repeat the question?

21 Q. Yes. That shift with respect  
22 to commercial viability during the class  
23 period that you just described to me,  
24 from most likely to be -- most likely not  
25 commercially viable to certainly not

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1 commercially viable. Are you with me, I  
2 am talking about that distinction that  
3 you just described?

4 A. Correct.

5 Q. So that distinction, in your  
6 understanding, was that distinction known  
7 to folks within Anadarko during the class  
8 period?

9 MS. JENSEN: Objection.

10 Characterization and beyond the scope.

11 A. I don't know what was known  
12 internally at Anadarko. But all I know  
13 is that based on the experts' review of  
14 the results from the Shen-4, that is what  
15 they determined. That's my  
16 understanding.

17 Q. And so you haven't done an  
18 independent analysis of this. You're  
19 just taking the work and conclusions of  
20 other experts; is that fair?

21 MS. JENSEN: Objection to the  
22 characterization.

23 A. Yes, I am. I have no knowledge  
24 of what Shenandoah understood internally.

25 Q. Okay. So you -- do you know

1 who Lea Frye is?

2 A. Yes. I believe she was the  
3 lady who filed a whistleblower complaint.

4 Q. Did that whistleblower  
5 complaint factor into your analysis at  
6 all?

7 A. I think it probably factored  
8 into -- it may have factored into the  
9 other experts' work in this case. And I  
10 am taking my assumptions from them.

11 So indirectly, you know, maybe  
12 it impacted my analysis. But I am  
13 looking at the assumptions that were  
14 provided to me. So I don't know to what  
15 extent her whistleblower complaint, you  
16 know, factored into these assumptions and  
17 consequently how that factored into my  
18 analysis, which is based on those  
19 assumptions.

20 Q. Did you investigate what Ms.  
21 Frye's understanding with respect to the  
22 commercial viability of the Shenandoah  
23 field was during the class period?

24 A. No, I did not.

25 Q. Do you have any understanding

1 or not there are other issues or other  
2 facts or information that was also  
3 revealed by the results of that  
4 particular well.

5 Q. Just to go back to Shen-2 for a  
6 moment. So Shen-2 had a thousand feet of  
7 net oil pay, right?

8 MS. JENSEN: Objection.

9 A. Yes, that is what I recall. I  
10 have it in paragraph 18. And I don't  
11 know if I specifically said that it has a  
12 thousand feet of oil pay. But I am  
13 pretty sure that's what it had.

14 Q. Well, this is not a trick  
15 question. You can look at your footnote  
16 12, if you want.

17 A. Yes, exactly. Yeah.

18 Q. Right. Okay. So then -- and  
19 that was before the class period, right?

20 A. That's correct, yes.

21 Q. And in your understanding, is  
22 that statement alleged to be either false  
23 or misleading?

24 A. No, I mean, my understanding is  
25 that the class period starts with the

1 misrepresentation, alleged  
2 misrepresentation in the Form 10-K that  
3 came out after the market closed on  
4 February 20th, 2015. So that is the  
5 first alleged misrepresentation that's  
6 relevant, for my purposes. You know,  
7 they may, you know, this may have been a  
8 false statement, too. But I mean for my  
9 purposes, you know, I explicitly start my  
10 inflation following that filing of Form  
11 10-K.

12 Q. So in your opinion, which are  
13 the inflationary statements?

14 A. Inflationary statements?

15 Q. Right.

16 A. Well, I mean, I typically call  
17 them misrepresentations. The alleged  
18 misrepresentations starts with the  
19 statement, the representations in the  
20 Form 10-K for the year-ended 2014.

21 Q. So that's the document that was  
22 filed with the SEC on February 20th,  
23 2015; is that right?

24 A. Correct, yes. That is the  
25 first misrepresentation that I had for

1 the purposes of establishing when  
2 liability starts in this particular case.

3 Q. Okay. But your opinion has to  
4 do with artificial inflation in the stock  
5 price, correct?

6 A. Correct, yes.

7 Q. And so my question is, in your  
8 opinion, when did that artificial  
9 inflation start?

10 A. Well, that started following  
11 the first misrepresentation, which was  
12 the filing of the 10-K. At that point in  
13 time, that's when you get an inflation,  
14 which is the difference between the stock  
15 price and the true value reflecting the  
16 alleged truth.

17 Q. And again that's February 20th,  
18 2015?

19 A. Well, it was after the market,  
20 so it ends up being February 21st of  
21 2015, yes.

22 Q. Okay. So I've asked you -- you  
23 know, and I am looking at your paragraph  
24 20, just to be clear, right, I assume you  
25 have it in front of you?

1           A.       Yes, I do.

2           Q.       And I was talking to you about  
3 paragraph 21, and that's the Shen-4  
4 result.

5                   And then if we go to paragraph  
6 22, that's the Shen-5 results. And you  
7 see there's, you quote an Anadarko  
8 announcement on July 26th, 2016 that  
9 Shen-5 had encountered more than 1,040  
10 net pay -- net feet of oil pay; do you  
11 see that?

12          A.       That's correct, yes.

13          Q.       Okay. And in your  
14 understanding, was that a false  
15 statement?

16          A.       It was a misrepresentation.  
17 That's my understanding.

18          Q.       When you say that --

19          A.       Because it was not -- typically  
20 the way that these cases work is that  
21 something is or may be false or  
22 misleading if it conceals material  
23 information that is necessary in order to  
24 fully understand the subject.

25                   So with respect to the Shen-5

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1 disclosure, the issue there is whether or  
2 not this is a full and accurate  
3 disclosure of the results up until that  
4 point in time.

5 Q. Okay. But, again, my question  
6 is a little bit narrower, which is in  
7 your understanding for purposes of your  
8 analysis, is it actually incorrect that  
9 there was 1,040 net feet of oil pay in  
10 Shen-5?

11 MS. JENSEN: Objection.

12 Misleading.

13 A. No, that is not my  
14 understanding of their allegations. I  
15 think my understanding of their  
16 allegations is that there is more  
17 information that should have been  
18 disclosed with respect to the results of  
19 the Shen-5.

20 Q. Okay. Again, and your  
21 understanding is that 1,040 net feet of  
22 oil pay, is that a lot or no big deal or  
23 what?

24 MS. JENSEN: Objection to form.

25 A. Well, you're on your fifth well

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1 and you have the highest net pay. So if  
2 you just look -- again, if you just look  
3 at the number, the number is the highest  
4 of all of the wells that had been drilled  
5 up until that point in time. So if you  
6 just look at the number, that would seem  
7 to be pretty good.

8 Q. Okay. Now, there were a series  
9 of misstatements alleged in this matter.  
10 Are you familiar with that?

11 A. I know that there are a series  
12 of misstatements. So, yes.

13 MR. SLIFKIN: Your video is  
14 cutting in and out a little bit. I  
15 got something that says my Internet is  
16 unstable.

17 Let's go off the record for a  
18 second.

19 THE VIDEOGRAPHER: Time is  
20 10:54, and we are going off the  
21 record. Hold on a second.

22 [Off the record.]

23 THE VIDEOGRAPHER: The time is  
24 11:07 a.m., and we are back on the  
25 record.

1                   [Discussion held off the  
2 record.]

3 BY MR. SLIFKIN:

4       Q.     Okay. I apologize for the  
5 technical difficulty. Let's go back to  
6 where we were.

7                   I take it you're familiar with  
8 the fact that in the operative complaint  
9 in this matter, there is a series of  
10 alleged misstatements during the class  
11 period?

12      A.     Yes, I am.

13      Q.     Okay. In your opinion, did  
14 those alleged misstatements add to the  
15 inflation in the price?

16      A.     Add to the inflation, no. They  
17 are statements that, to my understanding,  
18 were false and misleading, because they  
19 did not disclose the entire truth as  
20 alleged by plaintiffs with respect to the  
21 issues that were disclosed.

22      Q.     Okay. Did you perform some  
23 kind of event study analysis with respect  
24 to each of those 21 alleged  
25 misstatements?

1           A.       The initial analysis that I did  
2 for market efficiency did look at each  
3 day.   But I did not -- I do not recall  
4 whether or not any of those days had a  
5 statistically significant price increase.  
6 But I wouldn't -- given the allegation in  
7 this particular case, I wouldn't  
8 necessarily expect there to be any  
9 increase because it relates to  
10 information that was concealed throughout  
11 the class period and then was disclosed  
12 at the very end of the class period.

13 Q. I take it in your analysis  
14 inflation during the class period is  
15 flat, except for one step up, correct?

16           A.       Yes.   So the primary analysis  
17       that I performed in this particular case,  
18       was to quantify the inflation based on  
19       the price decline when the alleged truth  
20       was disclosed at the end of the class  
21       period.

22 So in other words, very often  
23 the best estimate of the impact of  
24 disclosing the alleged truth is to see  
25 what actually occurred when the alleged

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1 truth was disclosed. So that's, that's  
2 what I did in this particular case.

3 Q. Just to go back to my point,  
4 inflation is -- withdrawn.

5 I take it under your analysis  
6 there were two separate bands of  
7 inflation during the class period. There  
8 is the initial class period and then  
9 there is later in the class period,  
10 correct?

11 A. Correct. There is an increase  
12 because their ownership increased. In  
13 other words, I looked at the price  
14 decline at the very end of the class  
15 period. And then I reduced that  
16 inflation because during the earlier  
17 period, in the class period, the company  
18 only owned 30 percent of the Shenandoah  
19 as opposed to 33 percent, which was the  
20 ownership at the time of the corrective  
21 disclosure.

22 Q. Can you explain to us why that  
23 change in ownership makes a difference  
24 for you?

25 A. Well, the issue is what the

1 ownership was at the time of the  
2 disclosure. And the more the company  
3 would own of Shenandoah, the more the  
4 impact would be.

5 So the question then became,  
6 well, what happened during the early  
7 period of the class period when they own  
8 30 percent and not 33 percent, shouldn't  
9 they -- wouldn't the inflation be less  
10 than. So I made an adjustment to account  
11 for that.

12 Q. And isn't that because the  
13 inflation is premised on expected future  
14 cash flows?

15 A. Well, the investors make their  
16 own determination that is then reflected  
17 in the price decline. And, yes, that  
18 would be, I mean, the value of the stock  
19 is based on the present value of the  
20 future cash flows. So if you own 30  
21 percent versus 33 percent, there would be  
22 some difference there. So the question  
23 is do you make an adjustment or do you  
24 not make an adjustment. And my view was  
25 more conservative to make an adjustment.

1 And that's what I did.

2 Q. When you say the future cash  
3 flows and you refer to 30 percent, I take  
4 it you mean the future cash flows that  
5 would be attributable to a 30 percent  
6 ownership stake of Shenandoah, right?

7 A. Well, there are many factors  
8 that, I mean they were the operator.  
9 There may be different ways of looking at  
10 it. But I think that in this particular  
11 case, that's the numbers that I had, and  
12 so I make the adjustment based on the  
13 numbers that I had. And that is the  
14 ownership interest that they had. So  
15 that's why I made the adjustment.

16 Q. Is it fair to say that the  
17 ownership goes from 30 percent to 33  
18 percent, so -- well, let's take it in  
19 pieces, the ownership goes from 30  
20 percent to 33 percent, right, at some  
21 point in time?

22 A. Yes, in the -- yes.

23 Q. So what you do is you calculate  
24 inflation at a point in time when the  
25 ownership is 33 percent, correct?

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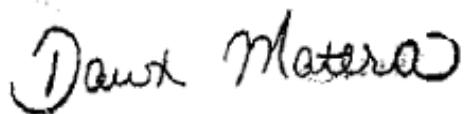
1 CERTIFICATION  
2

3 I, DAWN MATERA, a Notary Public for  
4 and within the State of New York, do  
5 hereby certify:

6 That the witness whose testimony as  
7 herein set forth, was duly sworn by me;  
8 and that the within transcript is a true  
9 record of the testimony given by said  
10 witness.

11 I further certify that I am not  
12 related to any of the parties to this  
13 action by blood or marriage, and that I  
14 am in no way interested in the outcome of  
15 this matter.

16 IN WITNESS WHEREOF, I have hereunto  
17 set my hand this 22nd day of December,  
18 2022.

19  
20   
21 -----  
22

23 DAWN MATERA  
24  
25

## **Exhibit 18**

Page 1

**UNITED STATES DISTRICT COURT**

**SOUTHERN DISTRICT OF TEXAS**

## **HOUSTON DIVISION**

**In Re: ANADARKO PETROLEUM** Civil Action No. **10-1000**

**Civil Action No.**

CORPORATION SECURITIES LITIGATION 4 : 20-cv-00576

-----x

1 question?

2 MR. DROSMAN: Objection; vague and  
3 ambiguous, calls for speculation.

4 A There can be.

5 For example, if one accountant is making a  
6 judgment based upon, say, facts A, B, C, and D, and  
7 another bases a judgment on A and C and F, they  
8 may -- they may reach a different conclusion.

9 That's a fairly common problem that I've  
10 encountered over the years.

11 BY MR. GRUENSTEIN:

12 Q Why would you say it's a problem?

13 A Frequently, a judgment is made based upon  
14 incomplete or erroneous information. Somebody makes  
15 a judgment in the absence of considering the  
16 appropriate factors that need to be considered when  
17 forming that judgment.

18 Q Are there instances when two accountants  
19 exercising their professional judgment reach  
20 different conclusions and both conclusions are  
21 reasonable?

22 MR. DROSMAN: Objection; calls for  
23 speculation, vague and ambiguous.

24 A I suspect that there can be situations  
25 where that occurs, but my -- in my experience, it's

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1 frequently because both -- both persons are not  
2 considering the same facts and circumstances; that  
3 they're either incomplete, or they're failing to  
4 give appropriate weight to certain factors.

5 BY MR. GRUENSTEIN:

6 Q Are GAAP principles subject to  
7 interpretation?

8 MR. DROSMAN: Objection; vague and  
9 ambiguous.

10 A They can be.

11 BY MR. GRUENSTEIN:

12 Q Can two accountants have different  
13 interpretations of a GAAP principle and both  
14 interpretations be reasonable?

15 MR. DROSMAN: Objection; calls for  
16 speculation, vague and ambiguous.

17 A Yeah, you need to drill into -- in terms of  
18 determining reasonableness, you need to drill into  
19 the facts and circumstances that were known at the  
20 time or knowable at the time and then make an  
21 assessment of whether both judgments were  
22 reasonable.

23 BY MR. GRUENSTEIN:

24 Q Are there times where the language of a  
25 GAAP principle is ambiguous, and two different

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1 accountants will interpret the words differently and  
2 both have reasonable interpretations?

3 MR. DROSMAN: Objection; compound, vague  
4 and ambiguous, calls for speculation.

5 A Yeah, I don't -- I don't know. It depends  
6 on the bases for the conclusion and the  
7 interpretation of GAAP.

8 Usually the interpretation of GAAP is  
9 influenced by the facts and circumstances that are  
10 being considered by the person that is attempting to  
11 operationalize GAAP.

12 And whether they did that reasonably is  
13 dependent upon what facts they considered and what  
14 factors they didn't consider.

15 BY MR. GRUENSTEIN:

16 Q Is FAS 19 considered part of GAAP?

17 A Well, it was, and then it was codified into  
18 the ASCs in 2009. And much of its language is  
19 incorporated within the ASCs.

20 Q What ASC was FAS 19 codified into?

21 A For example, 932 is -- much of the language  
22 of 932 is taken from FAS 19.

23 Q Are there parts of FAS 19 that were not  
24 codified into 932?

25 A I haven't made that analysis.

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1 Q In your report, you refer to FAS 19,  
2 correct?

3 A I do, yes.

4 Q If we go to page 11, paragraph 31 --

5 A Yes.

6 Q -- you say, "Although certain amendments to  
7 ASC 932 have been adopted, Statement of Financial  
8 Accounting Standards No. 19" -- and then you give  
9 the title -- "serves as the primary source for  
10 relevant codified accounting standards applicable to  
11 Anadarko."

12 What is your basis for saying that it  
13 "serves as the primary source for relevant codified  
14 accounting standards applicable to Anadarko"?

15 A The footnote references Reserve and  
16 Resources Manual, APC-00001289.

17 And within that document -- which I'm going  
18 to pull up --

19 MR. GRUENSTEIN: We'll mark that as  
20 Exhibit 517.

21 (APC-00001289 through 1445 was  
22 marked as Exhibit 517 for  
23 identification, as of this  
24 date.)

25 A Can I continue?

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1 BY MR. GRUENSTEIN:

2 Q Why don't you just give us a minute --

3 A Sure.

4 Q -- so that we're all looking at the  
5 exhibit.

6 Okay, I have it in front of me.

7 A If you go to page 4-1, which is Bates --  
8 the last four digits are 1309.

9 MR. DROSMAN: I don't think the Bates  
10 numbers on the document you put in correspond  
11 to the one that Mr. Regan is using.

12 MR. GRUENSTEIN: You're right. We put in  
13 1829. So, we'll fix that.

14 It's now up. It's Exhibit 517.

15 Do you have it, Dan?

16 MR. DROSMAN: I'm just refreshing my  
17 browser. Thank you. Hold on one sec.

18 Yes, I do. Thanks.

19 A So, this document is Anadarko's Reserves  
20 and Resource Manual. It's dated, on the first page,  
21 as 2012. And it's confidential and proprietary  
22 property of Anadarko Petroleum.

23 And on page 4-1, it talks about:

24 The history of oil and gas rules, starting  
25 with the Securities and Exchange Act of 1934;

1       executive committee.

2                 And I can tell you where it's referred to  
3       in my report. Hang on a moment, so we can get to  
4       the right page.

5       Q       I'm sure we can find it.

6                 MR. DROSMAN: Mr. Regan, you should feel  
7       free to fully answer the question.

8       A       It's a memoranda to the executive committee  
9       from Shenandoah exploration and development teams.

10               And if you look at page 50, footnote 52 --  
11       footnote 152 --

12       BY MR. GRUENSTEIN:

13       Q       You also mention -- you also mentioned an  
14       analysis that put the PIR below the 30 percent  
15       hurdle rate.

16               Are you certain that you've seen all of the  
17       relevant economic analyses relating to Shenandoah  
18       from this time period?

19       A       Oh, I imagine that there's others that I  
20       haven't seen.

21               But I've seen a number of analyses that  
22       reflect PIR10 of less than 30 and, in some  
23       instances, a negative number.

24               The 47 million comes from page 3 of that  
25       document.

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1           And I use 47 million because I said "less  
2 than 47 million." They calculate, on page 3, it's  
3 46 million.

4           Q       Are you aware that the company drilled both  
5 Shen-5 and Shen-6 after December 31, 2015?

6           A       Yes.

7           Q       And are you aware that they drilled these  
8 drills as what's known as "keeper wells"?

9           A       Yes. I'm aware that they were wells that  
10 could be used as producing wells.

11          Q       And are you aware that there was a  
12 significant expenditure of funds associated with  
13 drilling Shen-5 and Shen-6?

14          MR. DROSMAN: Objection; vague and  
15 ambiguous, compound.

16 BY MR. GRUENSTEIN:

17          Q       I'm sorry. Are you looking --

18          A       Oh, I said "yes."

19          Q       Yes, okay.

20          A       I probably spoke over counsel's objection.

21          Q       I think he spoke over you.

22                 Is that evidence inconsistent with your  
23 finding that there was substantial doubt about  
24 future economic viability?

25          A       I think the two can be -- can exist at the

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1 same time. There could be substantial doubt, and  
2 there could be the hope that it would be proven  
3 wrong through the success of Shen-5 or Shen-6 and an  
4 unwillingness to stop doing -- or to file an SOP  
5 with the government and to face the music that  
6 Shenandoah is something that we need to write off.

7 Q So, just to go back to the standard.

8 In 96, you say, "'substantial doubt' is  
9 described in GAAP to exist when a condition becomes  
10 'probable' or is 'likely' to occur."

11 Am I correct that you said earlier that  
12 probable is over 70 or 75 percent?

13 A Yeah. I've always used 70 in my head, but  
14 I know some people argue that it's 75.

15 The problem with that is it's difficult to  
16 quantitatively select a numerator and a denominator.  
17 So, it becomes kind of -- really, it's not something  
18 that you can mathematically make a calculation.

19 Q All right.

20 And so, essentially, what that means is  
21 that there is a 30 percent chance, or less, of  
22 Shenandoah being developed as of December of 2015;  
23 is that correct?

24 A Yes.

25 Q And, again, you haven't seen any testimony

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1 of anyone saying, "We should not continue with this  
2 project because there's a low likelihood of  
3 success," right?

4 MR. DROSMAN: Objection; asked and  
5 answered.

6 A Can I hear that again?

7 BY MR. GRUENSTEIN:

8 Q Sure.

9 A I'm -- I need to consider the whole  
10 question.

11 Q I said you haven't seen any testimony of  
12 anyone saying, "We should not continue with this  
13 project because there's a low likelihood of  
14 success"?

15 MR. DROSMAN: Objection; asked and  
16 answered.

17 A I don't recall that question.

18 I should just remind you that this is  
19 condition 3 on page 1 of my report.

20 And what I have mentioned within the pages  
21 that you're asking me are facts and circumstances  
22 that I've seen that are -- that are reasonable  
23 reflections that that condition is a reasonable  
24 condition.

25 But I know there's going to be other

1       testimony and facts and circumstances that, for  
2       example, from a petroleum engineer, that are going  
3       to indicate that this was a reasonable assumption,  
4       as well.

5       BY MR. GRUENSTEIN:

6           Q     And if there were testimony that people  
7       were saying, as of December 2015, that "we should  
8       abandon Shenandoah," that would be evidence, as  
9       well, right?

10           MR. DROSMAN: Objection.

11           A     Yes.

12           MR. DROSMAN: Improper hypothetical.

13       BY MR. GRUENSTEIN:

14           Q     And the fact that not a single person is  
15       saying that "we should shut the project down," isn't  
16       that at least evidence to call into question whether  
17       there was substantial doubt about the likelihood of  
18       success at Shenandoah?

19           MR. DROSMAN: Objection; lack of  
20       foundation.

21           A     Well, it is one of the conditions. It's  
22       condition 3. And the documents and evidence that  
23       I've seen are consistent with that.

24           I don't know. There may have been others  
25       that were of that opinion.

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1 C E R T I F I C A T E  
2

3 I, AMANDA McCREDO, a Shorthand Reporter  
4 and Notary Public of the State of New York, do  
5 hereby certify:

6 That the witness whose examination is  
7 hereinbefore set forth was duly sworn, and that  
8 such examination is a true record of the  
9 testimony given by such witness.

10 I further certify that I am not related to any  
11 of the parties to this action by blood or  
12 marriage, and that I am in no way interested in  
13 the outcome of this matter.

14  
15   
16

17 \_\_\_\_\_  
18 AMANDA McCREDO  
19  
20  
21  
22  
23  
24  
25

## **Exhibit 19**

**CONFIDENTIAL**

**UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION**

---

**IN RE ANADARKO PETROLEUM  
CORPORATION SECURITIES  
LITIGATION**

Civil Action No. 4:20-cv-00576

**EXPERT REPORT  
of  
D. PAUL REGAN, CPA/CFF  
NOVEMBER 9, 2022**

**Exhibit  
515**

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**I. THE NATURE OF MY ASSIGNMENT**

1. I have been retained, through my employer, Hemming Morse, LLP, Certified Public Accountants, Forensic and Financial Consultants (“HM”), on behalf of Plaintiffs in this matter by Class Counsel, Robbins Geller Rudman & Dowd LLP, to provide expert opinions regarding Anadarko Petroleum Corporation’s (“Anadarko” or the “Company”) accounting for, and disclosure of, costs incurred in connection with the Company’s offshore Shenandoah exploration project (“Shenandoah”) during the respective annual and interim financial reporting periods ended December 31, 2014 through March 31, 2017 (the “Relevant Period”).<sup>1</sup>
2. In connection with my assignment, I have been asked to assume that Plaintiffs will establish each of the following:
  - a. As of December 31, 2014 and throughout the Relevant Period, it was unlikely that the completed stratigraphic exploration well referred to as Shenandoah-3 (“Shen-3”) would be used as an injection or other type of service well in the development phase of the Shenandoah project (“Condition 1”).
  - b. The findings of the Company’s Shen-3 exploration wellbore, together with its findings of its prior wellbores, resulted in a material reduction to the estimated possible resources within the Shenandoah field as of Anadarko’s Q4 2014 financial reporting period (“Condition 2”).
  - c. By December 31, 2015, there was substantial doubt that the Shenandoah basin project (as a whole) would be economically viable (“Condition 3”).
3. Assuming these conditions, Class Counsel has asked me to opine on each of the following:

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<sup>1</sup> I understand that the case Class Period extends from February 20, 2015 through May 2, 2017, inclusive. The “Relevant Period” as used above pertains to the respective annual and interim financial reporting periods at issue in this matter. In this regard, Anadarko released its 2014 Annual Report on Form 10-K, including its related financial statements, on February 20, 2015 and its Q1 2017 Quarterly Report on Form 10-Q including its related financial statements, on May 2, 2017.

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- a. Whether the assumed conditions as of December 31, 2014 (*i.e.*, Conditions 1 and 2) would impact the accounting treatment for the costs of drilling Shen-3 under GAAP, as consistently applied?
  - b. In consideration of Conditions 1 and 2, whether Anadarko's accounting for the costs of drilling Shen-3 complied with GAAP, as consistently applied during the Relevant Period?
  - c. Whether the accounting treatment for the costs of drilling Shen-3 under GAAP change if in contrast to Condition 1, there was a reasonable possibility that Shen-3 could have future use as an injection well or other type of service well in the development phase of the Shenandoah Project?
  - d. Whether the assumed Condition 3 would impact the accounting treatment for the exploration costs, including leasehold rights and drilling costs, relating to the Shenandoah project under GAAP, as consistently applied?
  - e. In consideration of Condition 3, whether Anadarko's accounting for the Shenandoah project-related assets complied with GAAP as of and during the respective annual and interim periods between December 31, 2015 and 2016?
4. I am performing this expert witness engagement in accordance with the American Institute of Certified Public Accountants' ("AICPA") *Statement on Standards for Forensic Services*. These standards require me to be impartial, intellectually honest, and free of conflicts of interest. As a testifying expert providing forensic services, I am also bound by the AICPA's professional standards, including the duty to act with integrity and objectivity.
  5. Consistent with those requirements, my opinions, are my present opinions and are based on the information I have considered to date. These opinions are further based on my knowledge, training, education, and experience, as well as the various evidence cited in this report. This evidence is of the type that would ordinarily be relied on by an expert in accounting and financial reporting matters. Evidence includes historical information and relevant expert testimony about the performance of the Shenandoah field, including its borewells, during the Relevant Period. During this engagement, I have considered certain

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documents. These documents are identified in **Exhibit A** and in the body and footnotes of this report.

6. In my work I have been assisted by others in my firm who have acted under my direction and control. However, the opinions in this report are my own. I recognize that I am an expert witness, not a witness of fact. My understanding of the relevant facts comes from the documents and testimony that I have considered.
7. This report should not be construed as expressing opinions on matters of law, which are outside my expertise and are for the Court to determine. However, to the extent I have interpreted contracts, court cases or other evidence, these interpretations necessarily reflect my understanding thereof from an accounting and auditing perspective.
8. I understand that this report may be made available to other parties in this litigation, to their counsel and experts, as well as to the Court. It has been prepared for use in this action. In all other respects, this report is confidential. It should not be used, reproduced, or circulated for any other purpose, in whole or in part, without my prior written consent.
9. HM is being compensated for my services at \$870 per hour. This compensation is not contingent on the outcome of this matter or the conclusions that I reach.

**II. SUMMARY OF OPINIONS**

10. This report is based on the evidence I have reviewed to date. I understand that additional information may become available, including but not limited to relevant opinions and analyses by the parties' experts. As a result, I may modify my opinions based on additional evidence. I also reserve the right to change my opinions in the event that Conditions 1 through 3 above are modified.
11. Based on my review and analysis of the information currently available to me, as well as my professional experience, I have formed the following opinions in this matter:
  - a. Pursuant to the "Successful Efforts Method" of accounting for exploratory drilling costs, Anadarko was required to expense the cost of drilling Shen-3 no later than as of

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and for the year ended December 31, 2014, given that Shen-3 found no hydrocarbons<sup>2</sup> and the wellbore's unlikely use as an injection or other service well;

- b. Anadarko repeatedly failed to expense and disclose millions of dollars of Shen-3 related dry-hole expenses during each of the respective annual and/or quarterly periods between December 31, 2014 and June 30, 2015, in violation of GAAP;
- c. Anadarko's Shen-3 related accounting errors and disclosure omissions caused the Company's financial statements to be materially misstated as of and for the annual and/or quarterly periods between December 31, 2014 and June 30, 2015;
- d. Anadarko's Q3 2016 assertion that the continued capitalization of Shen-3 prior to September 30, 2016 was acceptable because a "reasonable possibility" existed that the wellbore would be used as an injection well or sidetrack well is flawed and unsupported in GAAP;
- e. Given that by December 31, 2015, there was substantial doubt that the Shenandoah basin project would be economically viable, Anadarko was further required to expense Shenandoah-related suspended exploration well costs and capitalized non-producing leasehold costs no later than December 31, 2015;
- f. Anadarko repeatedly failed to expense and properly disclose Shenandoah-related suspended exploration well costs and capitalized non-producing leasehold costs during each of the respective annual and/or quarterly periods between December 31, 2015 and December 31, 2016 in violation of GAAP and SEC accounting-related reporting rules; and

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<sup>2</sup> For purposes of this report, the term "hydrocarbon" is being used to be synonymous with "oil and natural gas." Notably, GAAP uses the term "Reserves" to mean the "estimated remaining quantities of oil and gas and related substances anticipated to be economically producible." ASC Master Glossary. As the absence of hydrocarbon reflects the absence of oil, this condition further reflects the absence of "reserves" under GAAP. At times in this report, I use or reference these terms (*i.e.*, hydrocarbons, oil, reserves) to convey the same underlying resources.

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- g. Anadarko's Shenandoah project-related accounting errors and disclosure omissions caused the Company's financial statements to be materially misstated as of and for the annual and/or quarterly periods between December 31, 2015 and December 31, 2016.
- 12. The basis for these opinions are described below in Section V of this report.

**III. QUALIFICATIONS**

- 13. My expert qualifications, including my testimony in the last four years and the publications I have authored in the past ten years, are described in greater detail in my curriculum vitae, attached as **Exhibit B**. My prior experience and education provide me with the appropriate qualifications to provide opinions in this matter.
- 14. I am a Certified Public Accountant ("CPA"), licensed in the State of California, and a Partner in Hemming Morse, LLP, Certified Public Accountants, Forensic and Financial Consultants in San Francisco, California. I have been a CPA continuously since 1970. My work in the accounting profession includes more than 50 years of continuous experience as an auditor or as a consultant. I have supervised and participated in audits, or the review of audits of companies' financial statements. I served as the engagement partner or concurring partner on more than 100 audits between 1975 and 1995. The largest engagement that I supervised was the audit of a public company with more than 100 subsidiaries operating throughout the world.
- 15. I have also provided accounting and/or auditing consulting services on more than 750 complex litigation matters. Many of these have required an extensive analysis and application of relevant GAAP, Securities and Exchange Commission ("SEC") financial reporting requirements, U.S. Generally Accepted Auditing Standards ("GAAS"), and Public Company Accounting Oversight Board ("PCAOB") Standards. I have also testified on accounting issues where the accounting standards were International Financial Reporting Standards ("IFRS"), Canadian GAAP, UK GAAP, Australian GAAP and Korean GAAP. I have performed these analyses and provided testimony for clients that include large and small companies in the private and public sector, as well as for various state and federal agencies (e.g., the Federal Deposition Insurance Corporation, Federal Home Loan Mortgage Corporation, SEC, U.S. Department of Justice, the PCAOB, Resolution Trust

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Corporation, California Department of Insurance, various Attorneys General of nineteen states, and the Department of Economic Development, an agency of the British government).

16. My experience includes the review of financial records of entities across a diverse range of industries including oil and gas companies. My consulting or expert witness experience has involved companies with operations in multiple locations in the United States, as well as in many other countries. The companies whose financial statements I have analyzed have included accounting for and disclosure of oil exploration and development costs, including those with offshore operations in the Gulf of Mexico. I have also personally owned interests in entities with working interests in oil and gas wells in Texas, Louisiana, and Oklahoma.
17. From 1976 through today, I have testified and been admitted as an expert in more than 125 trials and arbitrations and given more than 225 depositions. These cases were generally in state and federal courts in the United States. I have also testified in trials in Canada, Guam, the United Kingdom, Australia, and the International Court of Justice in the Netherlands.
18. I am a member of the California Society of Certified Public Accountants (“CalCPA”). I have served on its statewide Litigation Services Steering Committee since 1990 and I was its Chair during its 2002/2004 fiscal year terms. At that time, this Steering Committee provided guidance to the more than 800 members of its four Operating Sections: (1) Business Valuation; (2) Economic Damages; (3) Fraud; and (4) Family Law. For two and one-half years (through August of 1998), I was Chair of its 250-member Economic Damages Section. I served as Chair of the 28,000-member CalCPA during its 2004/2005 fiscal year term and in 2009, I received CalCPA’s Distinguished Service Award for a career of “extraordinary and distinguished service to the profession.”
19. I am a member of the AICPA. The AICPA had a national Forensic and Litigation Services Committee (“FLSC”) (formerly the Litigation and Dispute Resolution Subcommittee). From 1998 until July of 2001, I served as one of the nine members of this national committee. The FLSC oversaw and provided guidance to the AICPA’s then, 340,000 members relating to litigation consulting and dispute resolution. The FLSC also provided

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guidance and supervision to its subcommittees, which included the Subcommittee on Economic Damages. I served as Chairperson of the Subcommittee on Economic Damages from 1999 to July 2001.

20. From October 2003 until October 2011, I was a member of the AICPA's Governing Council. Under Rule 203 of the Code of Professional Conduct of the AICPA, this Council is the body that has the authority to designate which accounting principles constitute GAAP.
21. From August 2008 until October 2011, I served on the AICPA's Forensic and Valuation Services Executive Committee. This nine-person committee is the AICPA's standards setting body for CPAs performing forensic and valuation services. I have also been designated by the AICPA as a CFF ("Certified in Financial Forensics").

#### **IV. BACKGROUND RELEVANT TO MY OPINIONS**

22. Anadarko Petroleum Corporation is an oil and gas exploration and production company. During the Relevant Period, Anadarko's exploration and production portfolio included assets and related plays in (i) the United States, (ii) the Gulf of Mexico, and (iii) other international locations.<sup>3</sup>
23. During the Relevant Period, Anadarko's securities were publicly traded under the ticker symbol "APC" on the New York Stock Exchange. As a publicly traded entity, Anadarko was required to file periodic financial information with the SEC.
24. The predicate for SEC reporting requirements applicable to public companies like Anadarko is that "[c]ompanies offering securities for sale to the public must tell the truth about their business" and "everyone should be treated fairly and **have access to certain facts about investments.**"<sup>4</sup> To achieve this objective, the SEC requires public companies "**to regularly disclose significant financial and other information so investors have the**

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<sup>3</sup> Anadarko 2014 Form 10-K, p. 2; Anadarko 2017 Form 10-K, p. 4.

<sup>4</sup> *What We Do, Protecting Investors*, U.S. Securities Exchange Commission, <https://www.sec.gov/about/what-we-do#section1> (accessed November 7, 2022) (emphasis added).

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**timely, accurate, and complete information they need to make confident and informed decisions about when or where to invest.”<sup>5</sup>**

- A. ANADARKO’S FINANCIAL STATEMENTS WERE REQUIRED TO COMPLY WITH GAAP, INCLUDING EXPLICIT OIL AND GAS INDUSTRY-RELATED ACCOUNTING GUIDANCE**
- 25. Anadarko, including its executive management, was responsible for issuing the Company’s financial statements in accordance with GAAP.<sup>6</sup> Rule 4-01 of SEC’s Regulation S-X specifically states that “financial statements filed with the Commission which are not prepared in accordance with generally accepted accounting principles will be presumed to be misleading or inaccurate.”<sup>7</sup>
  - 26. The use of GAAP brings consistency, conformity, and over time, comparability to financial reporting.<sup>8</sup> It includes not only broad guidelines of general application, but also detailed practices and procedures.<sup>9</sup> Those conventions, rules, and procedures provide a standard by which to measure financial presentations. Authoritative GAAP is promulgated by the Financial Accounting Standards Board (“FASB”) and is contained within the FASB’s accounting standards codification (“ASC” or the “Codification”). Rules and interpretive releases of the SEC under the authority of federal securities laws are also sources of authoritative GAAP for SEC registrants.<sup>10</sup>
  - 27. Of particular relevance to matters at issue, as an oil and gas exploration and production company, relevant GAAP included industry-specific accounting standards established under ASC 932, *Extractive Activities – Oil and Gas* (“ASC 932”). Amongst other provisions, ASC 932 addresses accounting and reporting for industry-specific property,

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<sup>5</sup> *What We Do, Protecting Investors*, U.S. Securities Exchange Commission, <https://www.sec.gov/about/what-we-do#section1> accessed November 7, 2022) (emphasis added).

<sup>6</sup> PCAOB AU §110.03.

<sup>7</sup> 17 CFR § 210.4-01(a)(1).

<sup>8</sup> Federal Trade Commission, Informal Staff Advisory Opinion 02-4.

<sup>9</sup> PCAOB AU §411.02.

<sup>10</sup> ASC 105-10-05-01.

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- plant, and equipment in the oil and gas industry, including wells and related equipment and facilities.<sup>11</sup>
28. Anadarko's management repeatedly acknowledged its responsibility for preparing the Company's financial statements in accordance with GAAP. In this regard, Anadarko asserted that each of its financial statements filed with the SEC during the Relevant Period were "prepared in conformity with [GAAP]."<sup>12</sup>
  29. In addition, Anadarko's Chairman of the Board, President and Chief Executive Officer, R. A. Walker, and Executive Vice President, Finance and Chief Financial Officer, Robert G. Gwin, certified that the Company's financial statements and other financial information included in Anadarko's respective Annual and Quarterly Reports filed with the SEC during the Relevant Period "fairly present[ed] in all material respects the financial condition, results of operations and cash flows of [Anadarko] as of, and for, the periods presented."<sup>13</sup>
  30. Management further acknowledged its responsibility for "the fair presentation, in accordance with U.S. generally accepted accounting principles, of the consolidated

<sup>11</sup> ASC 932-360. Note: "wells and related equipment and facilities" is defined under GAAP as follows:

Wells and related equipment and facilities are often referred to in the oil and gas industry as lease and well equipment even though, technically, the property may have been acquired other than by a lease. The costs include those incurred to:

- a. Drill and equip those exploratory wells and exploratory-type stratigraphic test wells that have found proved reserves
- b. Obtain access to proved reserves and provide facilities for extracting, treating, gathering, and storing the oil and gas, including the drilling and equipping of development wells and development-type stratigraphic test wells (whether those wells are successful or unsuccessful) and service wells.

<sup>12</sup> Anadarko 2014 Form 10-K, p. 93; Anadarko 2015 Form 10-K, p. 91; Anadarko 2016 Form 10-K, p. 91; Anadarko Q1 2015 Form 10-Q, p. 7; Anadarko Q2 2015 Form 10-Q, p. 7; Anadarko Q3 2015 Form 10-Q, p. 7; Anadarko Q1 2016 Form 10-Q, p. 7; Anadarko Q2 2016 Form 10-Q, p. 7; Anadarko Q3 2016 Form 10-Q, p. 7; Anadarko Q1 2017 Form 10-Q, p. 8.

<sup>13</sup> Anadarko 2014 Form 10-K, Exhibits 31(i) and 31(ii); Anadarko 2015 Form 10-K, Exhibits 31(i) and 31(ii); Anadarko 2016 Form 10-K, Exhibits 31(i) and 31(ii); Anadarko Q1 2015 Form 10-Q, Exhibits 31(i) and 31(ii); Anadarko Q2 2015 Form 10-Q, Exhibits 31(i) and 31(ii); Anadarko Q3 2015 Form 10-Q, Exhibits 31(i) and 31(ii); Anadarko Q1 2016 Form 10-Q, Exhibits 31(i) and 31(ii); Anadarko Q2 2016 Form 10-Q, Exhibits 31(i) and 31(ii); Anadarko Q3 2016 Form 10-Q, Exhibits 31(i) and 31(ii); Anadarko Q1 2017 Form 10-Q, Exhibits 31(i) and 31(ii).

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financial statements, including disclosures, schedules, and interim financial information and all representations contained therein” to its external auditors, KPMG LLP.<sup>14</sup> In this regard, Mr. Walker, Mr. Gwin and Anadarko’s Vice President, Chief Accounting Officer, and Controller, Chris Champion, represented to KPMG LPP that Anadarko’s respective consolidated annual and interim financial statements were “fairly presented in conformity with U.S. GAAP.”<sup>15</sup> Of further relevance, Anadarko represented the following with respect to its accounting for “exploratory drilling work in process” and “dry hole expense” during the Relevant Period:

Based on current development plans and existing lease lives at [Date], the Company has evaluated its unproved property in accordance with FASB Topic ASC 932, Extractive Activities ~ Oil and Gas, and concluded that no additional impairment is necessary. ...

\* \* \*

We have reviewed the status of exploratory drilling work in progress through the date of this letter and appropriately recorded dry hole expense

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<sup>14</sup> See, e.g., Anadarko Engagement Letter dated March 30, 2015, APC-01699536 at 9631; Anadarko Engagement Letter dated March 22, 2016, APC-01396003 at 6043; Anadarko Management Representation Letter dated February 20, 2015, APC-01751288 at 1303, Anadarko Management Representation Letter dated February 17, 2017, KPMG\_APc\_eA\_0008355 at 8367. Note: Despite any inference to the contrary as a result of KPMG’s audits and its unqualified audit opinions, Anadarko management was solely responsible for the fair presentation of its financial statements. In this regard, professional auditing standards recognize that because an entity’s transactions and the related assets, liabilities, and equity are within the direct knowledge and control of management, the auditor’s knowledge of such matters and internal control is limited to that acquired during an audit. In this regard, PCAOB auditing standards recognize that an auditor is unable to provide absolute assurance that a company’s financial statements are free of material misstatement. As such, even if KPMG’s audits during the Relevant Period were performed in accordance with PCAOB auditing standards (an opinion which I am not offering), those same standards explicitly recognize that “a properly planned and performed audit may not detect a material misstatement.” PCAOB AS §1001, 1015.

<sup>15</sup> See, e.g., Anadarko Management Representation Letter dated May 4, 2015, APC-01699536 at 9642; Anadarko Management Representation Letter dated July 28, 2015, APC-01699656; Anadarko Management Representation Letter dated May 2, 2016, APC-01396003 at 6046; Anadarko Management Representation Letter dated July 26, 2016, APC-01396065 at 6065; Anadarko Management Representation Letter dated October 31, 2016, KPMG\_APc\_eA\_0007566 at 7566; Anadarko Management Representation Letter dated February 17, 2017, KPMG\_APc\_eA\_0008355 at 8355; Anadarko Management Representation Letter dated May 2, 2017, KPMG\_APc\_0027263 at 7428.

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... in accordance with FASB ASC Topic 932, *Extractive Activities – Oil and Gas* [“ASC 932”].<sup>16</sup>

31. As described further below, ASC 932 includes relevant GAAP for the accounting matters at issue in this case. Although certain amendments to ASC 932 have been adopted, Statement of Financial Accounting Standards No. 19, *Financial Accounting and Reporting by Oil and Gas Producing Companies*, as issued in 1977 (“FAS 19”), serves as the primary source for relevant codified accounting standards applicable to Anadarko.<sup>17</sup>

**B. OVERVIEW OF THE SHENANDOAH PROJECT**

32. During 2008, Anadarko participated in oil exploration activities within the Shenandoah basin located in the Gulf of Mexico. In early 2009, the Company announced the results of its initial discovery exploration well, Shenandoah-1 (“Shen-1”). Following certain regulatory delays, Anadarko continued its Shenandoah exploration activities during 2012. In March 2013, the Company announced the results from its second exploration well, Shenandoah-2 (“Shen-2”), including the following disclosure:

The Company-operated Shenandoah-2 well (30% working interest) reached total depth in January 2013, encountering more than 1,000 net feet of oil pay in multiple high-quality Lower Tertiary reservoirs. Similar to the initial Shenandoah discovery, well log and pressure data from the Shenandoah-2 well indicated excellent-quality reservoir and fluid properties. The targeted pay sands were full of oil with no oil-water contact.<sup>18</sup>

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<sup>16</sup> Anadarko Management Representation Letter dated February 20, 2015, APC-01751288 at 1296, and 1301 (also notes: “The Company has accounted for its oil and gas producing activities in accordance with FASB ASC 932, *Extractive Activities - the Oil and Gas.*”); Anadarko Management Representation Letter dated February 17, 2017, KPMG\_APc\_eA\_0008355 at 8362-8363, 8365. *See also* Anadarko Management Representation Letter dated May 4, 2015, APC-01699536 at 9649; Anadarko Management Representation Letter dated July 28, 2015, APC-01699656 at 9663; Anadarko Management Representation Letter dated May 2, 2016, APC-01396003 at 6053; Anadarko Management Representation Letter dated July 26, 2016, APC-01396065 at 6073; Anadarko Management Representation Letter dated October 31, 2016, KPMG\_APc\_eA\_0007566 at 7574; Anadarko Management Representation Letter dated May 2, 2017, KPMG\_APc\_0027263 at 7436. **Note:** The first noted paragraph appeared in both the February 20, 2015 and February 17, 2017 representation letters, while the second paragraph appeared in all cited representation letters.

<sup>17</sup> *See, e.g.*, Reserve and Resources Manual, APC-00001289.

<sup>18</sup> Anadarko 2013 Form 10-K, p. 9.

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33. During 2014 and the remainder of the Relevant Period, the Company continued to undertake exploration activities within the Shenandoah basin, including drilling. In this regard, Anadarko drilled various additional exploratory-type wells including Shen-3 (spud in Q2 2014), Shenandoah-4 (spud in Q2 2015), Shenandoah-5 (spud in Q1 2016) and Shenandoah-6 (spud in Q4 2016).<sup>19</sup>
34. Anadarko's working interest in the Shenandoah exploration project varied between 30% and 33% during the Relevant Period. In this regard, Anadarko was one of several partners participating in these exploration activities. These partners included ConocoPhillips Company ("Conoco" or "COP") and Marathon Oil Corporation ("Marathon"). Anadarko was the Operator while Conoco, Marathon and the other partners were partners in the joint venture.<sup>20</sup>
35. Anadarko had recorded and reported suspended well costs and other exploration costs associated with the Shenandoah basin project on its respective balance sheets included within the Relevant Period. These amounts ranged in value from between \$684.1 million and \$786.6 million of Shenandoah related assets within its balance sheet December 31, 2014 and December 31, 2016.<sup>21</sup>
36. As of March 31, 2017, Anadarko wrote off costs totaling \$901.5 million associated with its Shenandoah exploration project, including suspended well costs, non-producing leasehold costs and other related amounts. In connection with its Q1 2017 financial statements, Anadarko made certain disclosures in connection with this accounting treatment, including the following:

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<sup>19</sup> Anadarko 2014 Form 10-K, p. 9; Anadarko 2015 Form 10-K, p. 10; Anadarko 2016 Form 10-K, p. 11.

<sup>20</sup> Deposition of Ernest Leyendecker, 211:16-23 and 224:14-20.

<sup>21</sup> 2016.12.31 GG.4.A.8.10 SW AGING AND NET CHANGE, KPMG\_APc\_0008143; 2016.09.30 Q3.GG.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0007376; 2016.06.30 Q2.GG.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0007189; 2016.01.19 GG.4.A.8.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0006098; 2016.12.31 GG.4.B.1.10 NPLH ROLLFORWARD, KPMG\_APc\_eA\_0007983; 2016.03.31 Q1.GG.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0007094; 2014.12.31 GG.4.B.1.10 Q4 NPLH ROLLFORWARD, KPMG\_APc\_eA\_0002543; 2014.12.31 GG.4.A.8.10 SW AGING, KPMG\_APc\_eA\_0002531.

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During the three months ended March 31, 2017, the Company expensed suspended exploratory well costs of \$435 million related to the Shenandoah project in the Gulf of Mexico, including \$267 million previously capitalized for a period greater than one year. The Shenandoah-6 appraisal well and subsequent sidetrack, which completed appraisal activities in April 2017, did not encounter the oil-water contact in the eastern portion of the field. Given the results of this well and the present commodity-price environment, the Company has currently suspended further appraisal activities. Accordingly, the Company determined that the Shenandoah project no longer satisfies the accounting requirements for the continued capitalization of the exploratory well costs.

\* \* \*

The Company recognized \$532 million of impairments of unproved Gulf of Mexico properties during the three months ended March 31, 2017, of which \$467 million related to the Shenandoah project. The unproved property balance related to the Shenandoah project originated from the purchase price allocated to Gulf of Mexico exploration projects from the acquisition of Kerr-McGee Corporation in 2006.<sup>22</sup>

## **V. BASES FOR MY OPINIONS**

37. As stated above, based on my review and analysis of the information currently available to me, as well as my professional experience and the assumed Conditions set forth above by Plaintiffs, I have formed the following opinions in this matter:
  - a. Pursuant to the “Successful Efforts Method” of accounting for exploratory drilling costs, Anadarko was required to expense the cost of drilling Shen-3 no later than as of and for the year ended December 31, 2014, given that Shen-3 found no hydrocarbons and the wellbore’s unlikely use as an injection or other service well;
  - b. Anadarko repeatedly failed to expense and disclose millions of dollars of Shen-3-related dry-hole expenses during each of the respective annual and/or quarterly periods between December 31, 2014 and June 30, 2015, in violation of GAAP;
  - c. Anadarko’s Shen-3 related accounting errors and disclosure omissions caused the Company’s financial statements to be materially misstated as of and for the annual and/or quarterly periods between December 31, 2014 and June 30, 2015;

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<sup>22</sup> Anadarko Q1 2017 Form 10-Q, pp. 12-13.

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- d. Anadarko's Q3 2016 assertion that the continued capitalization of Shen-3 prior to September 30, 2016 was acceptable because a "reasonable possibility" existed that the wellbore would be used as an injection well or sidetrack well is flawed and unsupported in GAAP;
  - e. Given that by December 31, 2015, there was substantial doubt that the Shenandoah project would be economically viable, Anadarko was further required to expense Shenandoah-related suspended exploration well costs and capitalized non-producing leasehold costs no later than December 31, 2015;
  - f. Anadarko repeatedly failed to expense and disclose Shenandoah-related suspended exploration well costs and capitalized non-producing leasehold costs during each of the respective annual and/or quarterly periods between December 31, 2015, and December 31, 2016, in violation of GAAP; and
  - g. Anadarko's Shenandoah project-related accounting errors and disclosure omissions caused the Company's financial statements to be materially misstated as of and for the annual and/or quarterly periods between December 31, 2015, and December 31, 2016.
38. The bases for each of these opinions are described hereafter.
- A. **GAAP REQUIRED THAT ANADARKO EXPENSE SHEN-3 DRILLING COSTS FOLLOWING THE DETERMINATION THAT SHEN-3 FOUND NO HYDROCARBONS AND WAS UNLIKELY TO BE USED AS A SERVICE WELL AS PART OF A SHENANDOAH DEVELOPMENT PHASE**
39. Relevant GAAP requires that the capitalized cost of drilling exploratory wells<sup>23</sup> and exploratory-type stratigraphic wells<sup>24</sup> be immediately expensed once it is determined that

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<sup>23</sup> GAAP defines an "exploratory well" as "a well drilled to find a new field or to find a new reservoir in a field previously found to be productive of oil or gas in another reservoir. Generally, an exploratory well is any well that is not a development well, a service well, or a stratigraphic test well." ASC Master Glossary.

<sup>24</sup> GAAP defines a "stratigraphic test well" as "a drilling effort, geologically directed, to obtain information pertaining to a specific geologic condition. Such wells customarily are drilled without the intention of being completed for hydrocarbon production. This classification also includes tests identified as core tests and all types of expendable holes related to hydrocarbon exploration. Stratigraphic tests are classified as *exploratory-type* if not drilled in a proved area or *development-type* if drilled in a proved area." ASC Master Glossary.

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the completed well finds no hydrocarbons. Evidence reflects that the completed stratigraphic exploration well, Shen-3, found no hydrocarbons prior to the release of the Company's 2014 Annual Report on Form 10-K (February 20, 2015). Indeed, Shen-3 was contemporaneously described by Anadarko employees and Shenandoah business partners as a "wet well" or "dry hole" (*i.e.*, no hydrocarbons were found).<sup>25</sup> Accordingly, Anadarko was required to expense the cost of drilling Shen-3 within the Company's annual and quarterly period ended December 31, 2014, as detailed below.<sup>26</sup>

- 40. Anadarko's required expensing of Shen-3 drilling costs under GAAP is further supported by the Company's unlikely use of Shen-3 as an injection well (*i.e.*, Condition 1). In this regard, costs that do not relate to probable future economic benefit are normally not capitalized under GAAP during the Relevant Period.<sup>27</sup> As described further below and consistent with Condition 1, I am not aware of contemporaneous objective information demonstrating that as of the filing date, February 20, 2015, of Anadarko's Form 10-K for its December 31, 2014 financial statements, Shen-3's use as an injection well was more than a remote possibility.

**1. *It was Evident that Prior to the Issuance of Anadarko's 2014 Annual Report Shen-3 Found No Hydrocarbons***

- 41. Information available during the Relevant Period demonstrates that Shen-3 found no hydrocarbons. This determination was evident prior to the issuance of Anadarko's 2014 Annual Report on February 20, 2015. For example:
  - a. The poor results of the Shen-3 drilling effort appear to have been evident to Anadarko as early as November 2014. For example, in November 24, 2014 Jake Ramsey, Anadarko's Senior Staff Geologist, emailed Tim Trautman, Exploration Gulf of Mexico ("GOM") Manager, noting a proposed conceptual Shenandoah Project Timeline

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<sup>25</sup> Deposition of Patrick McGrievy; 149:5-21; Exhibit 355, Minces PLLC Letter to the SEC dated May 9, 2016, APC-00113302 at 3314.

<sup>26</sup> ASC 932-360-25-18; ASC 932-360-35-18-21.

<sup>27</sup> FASB Statement of Financial Accounting Concepts No. 6, ¶25; *see also* FAS 19, ¶143.

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presented to project partners in consideration of the “[b]ad news” received from the drilling of Shen-3.<sup>28</sup>

- b. Learning in December 2014 that the drilling cost for Shen-3 would be capitalized as suspended well costs, Louis Williams, Director-Expenditure Accounting,<sup>29</sup> appropriately inquired of Catherine Green, Accounting Manager-Property Accounting and Asset Retirement Obligations, as to the basis for suspending the cost. Specifically, Mr. Williams asked whether Shen-3’s continued capitalization was “because they found reserves?”<sup>30</sup> Mr. Williams would subsequently learn and document that Shen-3 “failed to find hydrocarbons within the well-bore.”<sup>31</sup>
- c. Having plugged the Shen-3 well in January 2015,<sup>32</sup> Ms. Green drafted a memo asserting that the well was successful because it helped “to determine the extent of the reservoir.” However, critical, and contrary to the required capitalization conditions

<sup>28</sup> Email from Jake Ramsey dated November 24, 2014, APC-00147963. Paul Chandler, Anadarko’s Project Geological Advisor (Operations Eastern Gulf of Mexico), would acknowledge during testimony that if Shen-3 was determined to be all wet in the upper and lower Wilcox, it would be the “worst-case scenario.” *See Deposition of Paul Chandler, 275:3-276:13; Exhibit 222, Phased Development with an Early Production Test Minimum Size Analysis dated October 2, 2014.*

<sup>29</sup> APC Organizational Chart, APC-00003195 at 3200.

<sup>30</sup> Email from Louis Williams dated December 4, 2014, APC-00001801.

<sup>31</sup> Email from Louis Williams dated January 5, 2015 with attached memo dated December 29, 2014, APC-00001803, APC-00001804 at 1804. While Mr. Williams further purported that Shen-3 “provided data which allowed additional reserves to be identified,” evidence available does not demonstrate that “additional reserves” were identified as part of the Shen-3 drilling. In fact, evidence reflects that as a result of Shen-3, significantly less MMBOE (Millions of Barrels of Oil Equivalent) were estimated to exist within the Shenandoah Project area. *See, e.g., email dated November 22, 2014 with attached Shenandoah Resource Estimate, APC-00617381, APC-00617383; Exhibit 197, Shenandoah Appraisal Program January 2015 Update & Recommendation (a PowerPoint presentation dated January 2015 showing MMBOE ranging from 780 – 1060 (P90 – P10) which was down significantly from the MMBOE estimate following Shen-2 of approximately 950 – 1450 at P90 and P10, respectively).*

<sup>32</sup> Email from Jim Kunning dated December 23, 2014, APC-00152617; Email from Pamala Johnson dated January 8, 2015, ANACOP00000354 at 354; Offshore Exposure – Dec 2014\_Final\_Suspended & Drilling, APC-00156333 (“rig released early Jan 2015”).

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under GAAP, Ms. Green noted that “[t]he Shendandoah-3 found sands that were non-hydrocarbon bearing and were filled with water.”<sup>33</sup>

- d. Despite asserting that Shen-3 provided “valuable information,”<sup>34</sup> Ernie Leyendecker, Anadarko’s Senior Vice President GOM Exploration, acknowledged internally that Shen-3 was in fact, “a wet well.”<sup>35</sup>
- e. In apparent recognition that Shen-3 was not “the success case,” but rather a “dry hole case” as a result of “encountering wet sands” as described in Anadarko’s April 8, 2014 Shen-3 Authorization for Expenditure (“AFE”) and communications, two of Anadarko’s Shenandoah project partners, including Conoco (its partner with a percentage interest in the project equal to Anadarko)<sup>36</sup> and Marathon, recognized the need to write off Shen-3 related drilling costs as of December 31, 2014. Specifically:<sup>37</sup>
  - 1. Jeff Pachman, Anadarko’s Project Land Advisor, conveyed Conoco’s accounting position to various Anadarko employees that “because the [Shen-3] **well found no hydrocarbons and has no future utility, the cost will be written off as a dry hole.**”<sup>38</sup> Consistent with these communications, Conoco disclosed the following in its 2014 annual report on Form 10-K: “The results of the first Shenandoah appraisal well were announced in 2013 and confirmed Shenandoah

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<sup>33</sup> Email from Louis Williams dated January 5, 2015, with attached memo dated December 29, 2014, APC-00001803, APC-00001804 at 1804; *see also* email from Michael Cieslak dated January 6, 2015, APC-00001863.

<sup>34</sup> Deposition of Ernest Leyendecker, 154:6-11.

<sup>35</sup> Email from Jeff Pachman dated February 12, 2015, APC-00001791 at 1791.

<sup>36</sup> In its AFE dated April 8, 2014, Anadarko, Conoco and Marathon held partnership interests in the Shenandoah Prospect of 30%, 30% and 10%, respectively while Cobalt held a 20% interest, APC-00005095.

<sup>37</sup> See Conoco’s characterization of Shen-3 as a dry hole in its emails dated January 8, 2005 at ANACOP00000354. I am aware that Anadarko’s other Shenandoah partner, Cobalt International Energy Inc. (“Cobalt”) did not expense Shen-3 well costs as of December 31, 2014. However, the evidence I have reviewed, including Cobalt’s 2014 Annual Report on Form 10-K does not contradict the determination that no hydrocarbons were found in Shen-3 and that Shen-3 was therefore deemed to be a wet well (*i.e.*, a dry hole. Cobalt 2014 Form 10-K, p. 5.

<sup>38</sup> Email from Diane Sease dated January 7, 2015, APC-00001795 at 1795 (emphasis added).

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as a significant oil discovery. **The second Shenandoah down dip appraisal well was spud in 2014 and expensed as a dry hole.”<sup>39</sup>**

2. Similar communications were conveyed to Anadarko by its Shenandoah partner, Marathon. On January 28, 2015, Marathon’s Vice President, Controller and Chief Accounting Officer, Gary Wilson, emailed Cathy Douglas, Anadarko’s Chief Accounting Officer, the following note, informing Ms. Douglas of Marathon’s plan to expense Shen-3’s drilling cost:

**I wanted to let you know that based on our interpretation of ASC 932 we have decided to expense the most recent Shenandoah appraisal well.**

There will be a single line in our earnings release referencing the well in the context of our total exploration expense for the quarter.<sup>40</sup>

Consistent with this communication, Marathon disclosed within its 2014 Annual Report on Form 10-K that “[t]he second appraisal well was spud in late May 2014 and the well costs incurred through December 31, 2014 were expensed in the fourth quarter of 2014.”<sup>41</sup>

- f. On May 9, 2016, on behalf of one of Anadarko’s Gulf of Mexico development team Senior Staff Reservoir Engineer, Lea Frye, Minces PLLC sent a letter to the SEC regarding alleged “Violations of Law by Anadarko.”<sup>42</sup> In addition to expressing other concerns regarding the Company’s Shenandoah project, the letter noted that “Shen 3

<sup>39</sup> Conoco 2014 Form 10-K, p. 8 (emphasis added). *See also* email from Teri Flinner, Conoco’s GOM Principal Exploration Landman dated January 22, 2015 Re “Shenandoah-WR 52#2 (Shen-3), APC-00001791-1792 (emphasis added) (“Please be advised that ConocoPhillips Company will include the following statement in ConocoPhillip’s fourth quarter and full-year 2014 earnings report expected to follow our conference call that will be held on Jan. 29<sup>th</sup>. ‘After evaluation, the company expensed the Shenandoah appraisal well as non-commercial.’”).

<sup>40</sup> Email from Gary Wilson dated January 28, 2015, APC-00001866.

<sup>41</sup> Marathon 2014 Form 10-K, p. 8. Note: Ms. Green further testified she never received information about these communications from ConocoPhillips or Marathon or their respective contemporaneous decision to write off Shen-3. (Deposition of Catherine Green, 85:13-86:15; 118:25-119:16).

<sup>42</sup> Exhibit 355, Minces PLLC Letter to the SEC dated May 9, 2016, APC-00113302 at 3306-3329.

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was a ‘wet well’ that did not reveal the presence of hydrocarbons (oil and gas).”<sup>43</sup> Specifically, on behalf of Ms. Frye, Minces PLLC observed the following:

Following the success of the Shen 2 well, drilling of the Shenandoah 3 (“Shen 3”) well began in the second quarter of 2014. While Shen-3 was also located in Walker Ridge (Block 52), it was quickly apparent that Shen 3 did not have the promise of Shen 2. **Shen 3 was a “wet well” that did not reveal the presence of hydrocarbons (oil and gas).**<sup>10</sup> Despite this, Anadarko executives elected to ride the wave of Shen 2 knowing the general public would accept distorted findings and projections based on the success of Shen 2. However, Shen-3 was nothing like Shen 2.

**Even though Shen 3 was a wet well, the exploration team described it as successful in terms similar to those used to describe Shen 2.** They did this in part by redefining the criteria by which resource capacity is projected. Aware that Shen 3 had the same sands (porous rock structure that can hold recoverable oil) that were present in Shen 2, the exploration team analogized Shen 3’s resource projections to those of Shen 2. In doing this, they ignored the findings of Ms. Frye and other engineers, even though these persons’ expertise is superior to theirs and even though the exploration team’s projections were in contravention of Anadarko’s published standards. ....<sup>44</sup>

<sup>10</sup> A “wet well” is often referred to in the oil and gas industry as a “dry hole.”

- g. In response to assertions in this letter and other information, outside consultants hired by the Company repeatedly affirmed that Shen-3 was indeed a “wet well or “dry hole.”<sup>45</sup>

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<sup>43</sup> Exhibit 355, Minces PLLC Letter to the SEC dated May 9, 2016, APC-00113302 at 3314.

<sup>44</sup> Exhibit 355, Minces PLLC Letter to the SEC dated May 9, 2016, APC-00113302 at 3314.

<sup>45</sup> Norton Rose Fulbright Report, APC-00002563 at 2642, 2645, 2758, and 2802.

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- h. Catherine Green, Accounting Manager-Property Accounting and Asset Retirement Obligations,<sup>46</sup> and Patrick McGrievy, Anadarko's former Deepwater Gulf of Mexico General Manager, both testified that Shen-3 did not contain any hydrocarbons.<sup>47</sup>
  
- 2. ***The Successful Efforts Method of Accounting Required that Anadarko Expense the Cost of Drilling Exploratory Well and Exploratory-Type Stratigraphic Wells, Including Shen-3, When No Hydrocarbons Were Found***
  - a) The “Successful Efforts” Method of Accounting Permitted the Capitalization of Certain Anadarko Exploration Costs But Was Intended to Highlight Failures During the Search for Oil By Expensing Costs That Do Not Result in an Identifiable Future Benefit
  
- 42. GAAP required that Anadarko account for oil and gas exploration and development costs using one of the following distinct accounting methodologies: (i) the full cost method, or (ii) the successful efforts method.<sup>48</sup> During the Relevant Period, Anadarko's policy was to apply the successful efforts method of accounting.<sup>49</sup>

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<sup>46</sup> Ms. Green testified that the “predominant basis” Shen-3 costs were suspended and capitalized was because of her belief that “the information from Shen 3 increased the overall resource estimate” of Shenandoah. However, Ms. Green further acknowledged that upon review, Shenandoah-3 did not increase the overall resource estimate of the Shenandoah project. (Deposition of Catherine Green 92:24-94:19). This is consistent with Condition 2 (*i.e.*, that Shen-3 materially reduced the likely reserves within the Shenandoah field) and the information available during Anadarko's Q4 2014 financial reporting period cited below beginning at paragraph 83 reflecting that as a result of Shen-3, Anadarko's estimated oil reserves in the Shenandoah area actually decreased.

<sup>47</sup> Deposition of Catherine Green, 70:24-71:71:8 (“Q. So Shenandoah did not contain hydrocarbons; correct – I'm sorry – A. Correct. Q. – Shenandoah 3 did not contain hydrocarbons; correct? A. Correct. Q. So, in other words, no oil was discovered by Shenandoah 3; correct? A. There were – there was no oil in the wellbore of Shenandoah 3.”); Deposition of Patrick McGrievy, 149:5-21 (“Q. And once Shen 3 Tded, which completed, it was found that it was – it was all wet; right? A. There was no hydrocarbons on the log – on the log, right. ... THE WITNESS: There was no hydrocarbons on the log to speak of. Q. Otherwise, it could be called a wet well? A. Yeah, it could be. Yeah, you could term it a wet well. Q. And the well results from Shen 3 which found no hydrocarbons resulted in a significant downward revision to the resource size of Shenandoah 3? A. Yep. Yes, it would.”).

<sup>48</sup> ASC 932-10-S99. Note: The FASB has expressed its “preference for” the successful efforts method of accounting. SFAS No. 25, *Suspension of Certain Accounting Requirements for Oil and Gas Producing Companies – An Amendment of FASB Statement No. 19*.

<sup>49</sup> See, e.g., AB 20-5, *Well Classification and Disposition of Suspended Well Costs*, APC-00001829; Anadarko 2014 Form 10-K, p. 95; Anadarko 2017 Form 10-K, p. 97.

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43. Under the full cost method, companies are generally able to capitalize all costs incurred in exploring for, acquiring, and developing oil reserves.<sup>50</sup> For example, capitalization of the cost of drilling exploration wells and exploratory-type stratigraphic wells is permitted irrespective of whether a well is successful under the full cost method of accounting.<sup>51</sup>
44. In its original 1977 Basis for Conclusion upon issuance of relevant GAAP (*i.e.*, FAS 19), the FASB observed that “[e]stablishing a direct cause-and-effect relationship **between costs incurred and specific reserves discovered is not relevant to full costing.**”<sup>52</sup> The FASB further observed that because the full cost method permits the capitalization of costs relating to unsuccessful property acquisitions and unsuccessful exploratory activities along with the costs of successful acquisitions and exploratory activities, “**full costing tends to obscure failure and risk.**”<sup>53</sup>
45. Conversely, “only those exploration costs<sup>54</sup> and development costs<sup>55</sup> that relate directly to specific oil and gas reserves are capitalized under the successful effort method.”<sup>56</sup> Costs that do not relate directly to specific reserves are expensed.<sup>57</sup>
46. In establishing this GAAP, the FASB recognized that a direct relationship exists between (i) costs incurred, and (ii) the discovery of oil reserves, under the successful efforts

<sup>50</sup> ASC 932-10-S99; ASC 932-360-S99.

<sup>51</sup> ASC 932-10-S99; ASC 932-360-S99; AICPA Audit and Accounting Guide, *Entities with Oil and Gas Producing Activities – Clarified*.

<sup>52</sup> FAS 19, ¶102 (emphasis added).

<sup>53</sup> FAS 19, ¶151 (emphasis added).

<sup>54</sup> Exploration costs are defined in part under GAAP as “[c]osts incurred in identifying areas that may warrant examination and in examining specific areas that are considered to have prospects of containing oil and gas reserves, including costs of drilling exploratory wells and exploratory-type stratigraphic test wells exploration costs may be incurred both before acquiring the related property (sometimes referred to in part as prospecting costs) and after acquiring the property. ASC 932-10-S99.

<sup>55</sup> Development costs are defined in part under GAAP as “costs incurred to obtain access to proved reserves and to provide facilities for extracting, treating, gathering and storing the oil and gas.” ASC 932-10-S99.

<sup>56</sup> ASC 932-360-25-3.

<sup>57</sup> ASC 932-360-25-3.

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methodology.<sup>58</sup> Indeed, the FASB further noted that because the “**discovery of oil and gas reserves is a critical event in determining failure or success,**” the successful effort accounting methodology is intended to highlight “failures and the risks involved in the search for oil and gas reserves **by charging to expense costs that are known not to have resulted in identifiable future benefits.**”<sup>59</sup>

47. Although the successful efforts methodology permits the initial capitalization of certain exploration costs, including the cost of drilling exploration wells and exploratory-type stratigraphic wells,<sup>60</sup> the ongoing capitalization of those costs ultimately depends on whether “proved reserves”<sup>61</sup> are found by the well. Of particular relevance, ASC 932-360-35-18 describes a scenario under the successful efforts accounting method where “**an exploratory-type stratigraphic well may be determined to have found oil and gas reserves, but those reserves cannot be classified as proved when drilling is completed.**”<sup>62</sup> **In such circumstances**, GAAP states that the costs of drilling the well shall only continue to be capitalized if:

<sup>58</sup> FAS 19, ¶102.

<sup>59</sup> FAS 19, ¶151 (emphasis added).

<sup>60</sup> ASC 932-360-25-10 (emphasis added) (“The costs of drilling exploratory wells and the costs of drilling exploratory-type stratigraphic test wells shall be capitalized as part of the entity’s uncompleted wells, equipment, and facilities **pending determination of whether the well has found proved reserves.**”).

<sup>61</sup> “**Proved Oil and Gas Reserves**” are defined in part as, “those quantities of oil and gas, which, by analysis of geoscience and engineering data, **can be estimated with reasonable certainty to be economically producible from a given date forward**, from known reservoirs, and under existing economic conditions, operating methods, and government regulation before the time at which contracts providing the right to operate expire, unless evidence indicates that renewal is reasonably certain, regardless of whether the estimate is a deterministic estimate or probabilistic estimate. … In the absence of data on fluid contacts, proved quantities in a reservoir are limited by the lowest known hydrocarbons as seen in a well penetration unless geoscience, engineering, or performance data and reliable technology establish a lower contact with reasonable certainty.” ASC Master Glossary (emphasis added).

<sup>62</sup> ASC 932-360-35-18 (emphasis added) (“**An exploratory well or an exploratory-type stratigraphic well may be determined to have found oil and gas reserves, but those reserves cannot be classified as proved when drilling is completed.** In those cases, the capitalized drilling costs shall continue to be capitalized if **the well has found a sufficient quantity of reserves to justify its completion as a producing well** and the entity is making sufficient progress assessing the reserves and the economic and operating viability of the project. Note that an entity is not required to complete the exploratory or exploratory-type stratigraphic well as a producing well.”).

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- a. “the well has found a sufficient quantity of reserves to justify its completion as a producing well”; and
  - b. “the entity is making sufficient progress assessing the reserves and the economic and operating viability of the project.”<sup>63</sup>
48. Therefore, an exploratory-type stratigraphic well that is determined not to have found any oil and gas reserves (*i.e.*, a “dry hole” or “wet well”)<sup>64</sup> **is required to be expensed under GAAP.**<sup>65</sup> That is, absent the identification of any oil reserves, the proved reserves threshold could never be satisfied, and the cost of exploratory drilling must be expensed. In this regard, the FASB has observed that “costs be charged to expense as soon as a determination is made that proved reserves have not been found.”<sup>66</sup> Consistent with this

<sup>63</sup> ASC 932-360-35-18.

<sup>64</sup> See, e.g., Norman Rose Fullbright Report, APC-00002563 at 2645, 2802; Exhibit 355, Minces PLLC Letter to the SEC dated May 9, 2016, APC-00113302 at 3314.

<sup>65</sup> See also AICPA Audit and Accounting Guide, *Entities with Oil and Gas Producing Activities – Clarified*, 4.12-4.16 and 9.42 (emphasis added) (“**If an exploratory well or exploratory-type stratigraphic test well is in progress at the end of a period and the well is determined not to have found reserves before the financial statements for that period are issued, the costs incurred through the end of the period, net of any salvage value, are charged to expense for that period**, in accordance with FASB ASC 932-360-40-10 [...] 9.42 Under successful efforts accounting, costs incurred in drilling exploratory wells that are determined to be dry holes should be expensed.”); 2.78 (“If the well is deemed to not contain adequate reserves to more than cover the costs to complete the well and the future production costs, it will likely be declared a “dry hole” and will be abandoned.”).

See also Deloitte Oil and Gas, *Accounting, Financial Reporting, and Tax Update*, January 2016, p. 2 (“Under the successful-efforts method, costs related to the successful identification of new reserves may be capitalized while costs related to unsuccessful exploration efforts (e.g., drilling efforts that result in a dry hole) would be immediately recorded on the income statement.”).

<sup>66</sup> FAS 19, ¶198; See also AB 20-5, *Well Classification and Disposition of Suspended Well Costs*, APC-00001829 at 1829 (emphasis added) (“The initially capitalized costs of drilling exploratory wells that do not find proved reserves are expensed (net of any salvage value, as defined in the Accounting Bulletin 20.7) **when determination is made that no proved reserves can be attributed as a result of such drilling.**”); FASB Staff Position, FAS 19-1: *Accounting for Suspended Well Costs* (emphasis added) (“In certain circumstances, an exploratory well finds reserves but those reserves cannot be classified as proved when drilling is completed. ... Paragraphs 31–34 of Statement 19 provide guidance on whether exploratory well costs can continue to be capitalized when the well finds reserves but those reserves cannot be classified as proved when drilling is completed. If reserves cannot be classified as proved in an area requiring a major capital expenditure, paragraphs 31(a) and 34 of Statement 19 require that the cost be carried as an asset provided that (a) there have been sufficient reserves found to justify completion as a

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understanding, Anadarko asserted in its 2014 Annual Report on Form 10-K that under the successful efforts method, exploratory costs “associated with a well discovering hydrocarbons are initially capitalized, or suspended, pending a determination as to whether a commercially sufficient quantity of proved reserves can be attributed to the area as a result of drilling.”<sup>67</sup>

- b) Anadarko’s Contemporaneous Authorization for Expenditure Reflects that Shen-3 Was Drilled for Exploratory Purposes
49. Evidence reflects that the Shen-3 well was drilled for exploratory purposes. For example, in Anadarko’s April 8, 2014 AFE, provided to various Shenandoah project partners, stated that the Shen-3 drilling “Type” was “EXPLORATORY.”<sup>68</sup> In other examples, (i) the Company’s December 2014 draft suspended well accounting analysis explicitly described Shen-3 as meeting the definition of an “exploratory stratigraphic test well,”<sup>69</sup> and (ii) KPMG’s recurring suspended well cost memoranda during the Relevant Period through Q2 2016, described capitalized Shen-3 well costs as being “exploratory assets.”<sup>70</sup>
50. The classification of Shen-3 as exploratory in nature has important significance under GAAP. Exploration costs, including the cost of drilling exploration wells and exploratory-type stratigraphic wells, must comply with the successful effort method accounting guidance set forth above. Indeed, consistent with the successful effort accounting concepts

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producing well if the required capital expenditure is made, and (b) drilling of the additional exploratory wells is under way or firmly planned for the near future. If either of those two criteria is not met, the enterprise must expense the exploratory well costs.”).

<sup>67</sup> Anadarko 2014 Form 10-K, p. 79.

<sup>68</sup> Letter to Shenandoah Partners AFE No. 2087315 WR 52 No. 2 dated April 8, 2014, APC-00005093 at 5095.

<sup>69</sup> Email from Michael Cieslak dated January 6, 2015, APC-00001863 at 1864.

<sup>70</sup> GG.4.A.8.05 Suspended Well Costs Memo Period-end 12-31-2014, KPMG\_APc\_eA\_0002511; Q1GG.15 Suspended Well Costs Memo Period-end 3-31-2015, KPMG\_APc\_eA\_0003262; Q2.GG.13 Suspended Well Costs Memo Period-end 6-30-2015, KPMG\_APc\_eA\_0003349; Q3.GG.13 Suspended Well Costs Memo Period-end 9-30-15, KPMG\_APc\_eA\_0003451; GG.4.A.8.10 Suspended Well Costs Memo Period-end 12-31-2015, KPMG\_APc\_eA\_0006079; GG.4.A.8.10 Suspended Well Costs Memo Period-end 3-31-2016, KPMG\_APc\_eA\_0007100.

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described above, Anadarko noted in its April 8, 2014 Letter to its Shenandoah partners that the Shen-3 “success case” equated to encountering oil:

**Please note that the “dry hole case” equates to encountering wet sands and the “success case” equates to encountering oil via LWD, mud logs or other tools used while drilling through the objective section.<sup>71</sup>**

- c) Exploratory Well and Exploratory-Type Stratigraphic Well Costs Are Required To Be Assessed On Their Own Under GAAP
51. Importantly, accounting for an exploration well (and an exploratory-type stratigraphic well) must be evaluated on its own under GAAP. That is, the success of a specific well in finding oil reserves should not be based on whether another, separate and distinct well previously found oil within a larger project area. In this regard, the FASB observed:

**An exploratory well must be assessed on its own, and the direct discovery of oil and gas reserves can be the sole determinant of whether future benefits exist and, therefore, whether an asset should be recognized.<sup>72</sup>**

52. Consistent with this understanding, the guidance established under ASC 932-360-35-18 is specifically worded in the context of evaluating the continued capitalization of “the well” or “an exploratory well.” Thus, as noted below, the continued asset capitalization of “an exploratory well or an exploratory-type stratigraphic well,” subject to finding oil, is not written in the context of finding oil in an overall project area (*e.g.*, the Shenandoah project, including the Shenandoah 1 and 2 wellbores), rather it is specific:

**An exploratory well or an exploratory-type stratigraphic well may be determined to have found oil and gas reserves, but those reserves cannot be classified as proved when drilling is completed. In those cases, the capitalized drilling costs shall continue to be capitalized if the well has**

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<sup>71</sup> Letter to Shenandoah Partners AFE No. 2087315 WR 52 No. 2 dated April 8, 2014, APC-00005093 at 5094.

<sup>72</sup> FAS 19, ¶31 (emphasis added).

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found a sufficient quantity of reserves to justify its completion as a producing well ...<sup>73</sup>

53. Although a separate criterion exists in ASC 932-360-35-18 requiring an entity to assess the economic and operating viability of the project overall, that criterion becomes irrelevant if an individual well fails to find oil reserves. To incorrectly assume the requirement was specific to the project overall and not the individual well, Anadarko would have satisfied the requirement prior to spudding Shen-3 based on the prior period Shen-1 and Shen-2 results. This flawed assumption is directly inconsistent with the successful effort methodology which, as noted above, was intended to highlight failures during the search for oil by expensing costs that do not result in an identifiable future benefit. Suspending (capitalizing) such costs would obscure failure and risk (violating GAAP) by converting Anadarko's accounting policy for this well to its having adopted the full cost method of accounting, contrary to its stated use of the successful efforts method of accounting, (see paragraphs 42-44 above).
54. In addition to its disclosed policy cited above in paragraph 48, Anadarko's applied accounting practices during the Relevant Period reflect an understanding that exploration wells and exploratory-type stratigraphic wells, similar to Shen-3, were required to be evaluated individually in assessing whether capitalization of suspended well costs under GAAP was appropriate. Indeed, Anadarko's internal accounting policy A.B. No 20.5, *Well Classification and Disposition of Suspended Well Costs*, included illustrative examples requiring that exploratory wells be assessed individually, and expensed when a related well is dry (*i.e.*, Examples 1 and 4 of Exhibit I).<sup>74</sup>

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<sup>73</sup> ASC 932-360-35-18 (emphasis added). *See also, e.g.*, Overview of Oil and Gas Accounting & PSC Accounting, Budi Hartono, Ernst & Young LLP, p. 12 (“Under US GAAP, an appraisal well is treated exactly the same as an exploration well and should be written-off if unsuccessful, even the very same field or reservoir is determined to be successful and developed.”); FAS 19 ¶201 (“The costs of drilling the exploratory-type stratigraphic test well are capitalized pending determination of whether proved reserves are found, subject to the condition that those costs not continue to be carried as assets indefinitely if stratigraphic test drilling activity in the area has ceased or if the quantity of reserves found would not justify completion of the well for production had it not been simply a stratigraphic test well.”).

<sup>74</sup> A.B. No 20.5, *Well Classification and Disposition of Suspended Well Costs*, APC-00001829 at 1838-1841.

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55. Consistent with this understanding, Anadarko repeatedly wrote off drilling costs for individual wells, despite the respective wells being located within a larger project area where oil reserves had previously been discovered. For example:
- a. In connection with its Coronado oil exploration project, Anadarko undertook multiple drilling efforts that resulted in capitalized suspended costs through June 30, 2014. During Q2 2014, the Company determined that one of its related wells was a “dry hole” where no reserves were identified. Although the well was located within the Coronado play, the Company recognized the need to, and in fact did, expense those costs associated with the unsuccessful well. At the same time, Anadarko continued to capitalize other suspended exploration well costs incurred in connection with successful efforts within the Coronado area.<sup>75</sup>
  - b. During the same reporting period, similar dry hole accounting expenses were recorded in connection with an unsuccessful “dry hole” well located in Anadarko’s Yucatan project area. While the individual dry hole well costs were expensed, the Company continued to capitalize other suspended well costs (*i.e.*, not determined to be dry holes) associated with previous successful exploration wells located in the same project area.<sup>76</sup>
  - c. During Q3 2016, Anadarko expensed certain specific unsuccessful well efforts during Q3 2016 within its Tubarao Tigre and Mozambique exploration project areas. While the individual dry hole well costs were expensed, the Company continued to capitalize other exploratory well costs (*i.e.*, not determined to be dry holes) in these respective exploration project areas.<sup>77</sup>
56. In fact, Anadarko’s, albeit non-timely, write-off of Shen-3 during Q3 2016 despite the Company’s continued capitalization of other wellbores (*e.g.*, Shen-1, Shen-2, Shen-4 and

<sup>75</sup> Q2 2014 Exploration Expense Testwork Memo – Dry Hole Expense, KPMG\_APCEA\_0003043 at 3046-3047.

<sup>76</sup> Q2 2014 Exploration Expense Testwork Memo – Dry Hole Expense, KPMG\_APCEA\_0003043 at 3047-3048.

<sup>77</sup> Q3 2016 Exploration Expense Testwork Memo – Dry Hole Expense, KPMG\_APCEA\_0007469 at 7472-7474.

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Shen-5) demonstrates that wells are to be assessed individually under the successful efforts method and ASC 932-360.<sup>78</sup> This accounting treatment is further consistent with the testimony of Catherine Green, Accounting Manager-Property Accounting and Asset Retirement Obligations,<sup>79</sup> who affirmed that the determination of whether you should suspend the well cost “is done on a well-by-well basis.”<sup>80</sup>

- d) [GAAP Required Anadarko to Immediately Expense Exploratory Wells and Exploratory-Type Stratigraphic Wells When It Was Determined That No Hydrocarbons Were Found as of December 31, 2014](#)
57. Information reflects that Anadarko capitalized approximately \$64 million of suspended costs of drilling Shen-3 as of December 31, 2014.<sup>81</sup> Given the supporting information demonstrating that Shen-3 found no oil, these suspended costs were required to be expensed under the aforementioned GAAP. As this information appears evident, no later than the filing date of Anadarko’s 2014 annual financial statements on Form 10-K, the Shen-3 related write-off expense and disclosure of this \$64 million dry hole expense was required no later than December 31, 2014. In this regard, the expensing of Shen-3 was necessary and consistent with GAAP requirements under the successful effort method to highlight failures and risks involved in exploration of the Company’s Shenandoah project.
58. Indeed, in addition to acknowledging that the Shen-3 was a “wet well” or “dry hole,” as described above, Anadarko conceded in a November 10, 2016 memo that the well “was unsuccessful under ASC 932-360-25-18.”<sup>82</sup> Stated differently, Anadarko inherently

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<sup>78</sup> Q3 2016 Exploration Expense Testwork Memo – Dry Hole Expense, KPMG\_APc\_eA\_0007469 at 7470-7471.

<sup>79</sup> APC Organizational Chart, APC-0003195 at 3202.

<sup>80</sup> Deposition of Catherine Green, 83:7-14 (“Going back to my initial question, though, this analysis is done on a well-by-well basis; correct? A. Yes, whether you should ca- -- whether you should capitalize -- continue to suspend the well cost is done on a well-by-well basis, subject to also the sufficient progress criteria for the overall project.”).

<sup>81</sup> Offshore Exposure - Dec 2014\_Final\_Suspended & Drilling, APC-00156333.

<sup>82</sup> Q3 2016 – Shenandoah-3 Suspended Well Accounting Analysis dated November 10, 2016, APC-01720564 at 0566.

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acknowledged that it lacked a reasonable and appropriate basis under ASC 932-360-25 to capitalize the Shen-3 exploratory-type stratigraphic well costs during 2014.

3. *The Unlikely Use of Shen-3 As An Injection Well Further Supports Anadarko’s Requirement Under GAAP to Expense Shen-3 Drilling Costs When No Hydrocarbons Were Found*
  
59. As discussed above, the FASB recognized the general concept that costs that do not relate to probable future economic benefit are normally not capitalized during the Relevant Period. Beyond the principal failure of Anadarko to find hydrocarbons at Shen-3, the well’s unlikely use as an injection well (Condition 1) further demonstrates the remote likelihood that Shen-3 would provide the Company with future economic benefits. The evidence that I have seen produced by the Company only cites to speculation that the Shen-3 well bore may be used as a water injection well or other service well and not to any evidence reflecting a study or analyses resulting in a contemptuous conclusion that such use was likely.<sup>83</sup>
  
- B. **ANADARKO’S Q3 2016 ASSERTION THAT CONTINUED CAPITALIZATION OF SHEN-3 WAS ACCEPTABLE BECAUSE A “REASONABLE POSSIBILITY” EXISTED THAT THE WELL WOULD BE USED AS AN INJECTION WELL OR SIDETRACK WELL IS FLAWED AND UNSUPPORTED IN GAAP**
  
60. As noted above in paragraph 58, Anadarko internally acknowledged that Shen-3 was “unsuccessful” and therefore, did not satisfy the specific capitalization requirements established in ASC 932-360-25-18 for exploratory-type stratigraphic well costs. However, the Company further asserted that because a “reasonable possibility” existed that the well would be used as an injection well, sidetrack well, or development well, capitalization of Shen-3 in 2014 through Q3 2016 was appropriate.<sup>84</sup> This assertion, even if true, has no basis under GAAP and is fundamentally flawed.

1. *The Company Acknowledged That Shen-3 Well Costs Were Not Exploration Costs that Could Be Capitalized under ASC 932-360-25-18*

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<sup>83</sup> Deposition of Ernest Leyendecker, 91:8–95:12, 176:15-182:3, and 196:02-202:4.

<sup>84</sup> Q3 2016 – Shenandoah-3 Suspended Well Accounting Analysis dated November 10, 2016, APC-01720564 at 0566.

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61. Given that Shen-3 found no hydrocarbons (*i.e.*, Section V.A.1), the Shen-3 exploratory-stratigraphic well drilling costs were not capitalizable under applicable GAAP as of December 31, 2014. Indeed, the Company affirmed during Q3 2016 that:
- a. The “Shenandoah-3 well was drilled as an exploratory stratigraphic test well”; and
  - b. The Shen-3 well was “unsuccessful” under ASC 932-360-25-18.<sup>85</sup>
62. As a result, the Company correctly concluded in 2016 that its Shen-3 well costs could **not** be capitalized pursuant to the specifically provided GAAP to which an exploratory-type stratigraphic well relates (*e.g.*, ASC 932-360-25-18; ASC 932-360-35-18). This is significant because under GAAP, companies, including Anadarko, are required to first consider Codification guidance that is specific to a particular transaction or event (*e.g.*, the costs incurred when drilling an exploratory-type stratigraphic well) when determining how to account for the transactions or events.<sup>86</sup> Only in the absence of specific guidance, may companies refer to accounting principles for “similar” transactions or events within a source of authoritative GAAP.<sup>87</sup> Absent specific guidance within the relevant codification, a company should look to nonauthoritative accounting guidance outside the Codification.<sup>88</sup> However, because specific Codification guidance did exist for exploratory-type stratigraphic wells (ASC 932-360-25-18; ASC 932-360-35-18), Anadarko was required to apply it.

**2. *The Company Acknowledged That Shen-3 Well Costs Were Not Development Costs that Could Be Capitalized under ASC 932-360-25-14***

63. Referencing Shen-3’s purpose as “an exploratory stratigraphic test well,” Anadarko further acknowledged during Q3 2016 that Shen-3 related drilling costs were not “development

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<sup>85</sup> Q3 2016 – Shenandoah-3 Suspended Well Accounting Analysis dated November 10, 2016, APC-01720564 at 0566.

<sup>86</sup> ASC 105-10-05-02.

<sup>87</sup> ASC 105-10-05-02.

<sup>88</sup> ASC 105-10-05-03.

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costs,” as contemplated by ASC 932-360-25-14.<sup>89</sup> I agree with this conclusion.<sup>90</sup> Because ASC 932-360-25-14 provides the primary accounting guidance for the initial recognition (and capitalization) of **development** costs, the Shen-3 exploratory-stratigraphic well drilling costs were not capitalizable thereunder.<sup>91</sup>

64. This is also important considering that GAAP includes the costs of drilling injection, development wells and other service wells within its definition of “development costs.”<sup>92</sup> Therefore, a reasonable possibility that Shen-3 might be used as an injection well, even if objectively supportable, is not relevant to whether Anadarko could capitalize its related drilling costs based on the Company’s implicit acknowledgement that capitalization for

<sup>89</sup> Q3 2016 – Shenandoah-3 Suspended Well Accounting Analysis dated November 10, 2016, APC-01720564 at 0566; *see also* Deposition of Catherine Green, 47:4-17 (“Q. Was Shenandoah 3 an exploratory well? A. Yes. Q. Accordingly, Shenandoah 3 was not a development well; correct? A. Correct. Q. And this determination was made prior to Shenandoah 3 being spud; correct? A. Yes. Q. So Shenandoah 3 costs were associated with exploration costs; correct? A. Yes. Q. And Shenandoah 3 costs were not associated with development costs; correct? A. Correct.”).

<sup>90</sup> ASC 932-360; *see also* AICPA Audit and Accounting Guide, *Entities with Oil and Gas Producing Activities – Clarified*, 4.17-4.18 (“4.17 Costs incurred to obtain access to proved reserves and to provide facilities for extracting, treating, gathering, and storing the oil and gas are capitalized. All costs incurred to drill and equip development wells, development-type stratigraphic test wells, and service wells are development costs and are capitalized, whether the well is successful or dry. ... Because development dry holes are capitalized and exploratory dry holes are expensed, **the distinction between them is extremely important and should be made by the company prior to drilling.**”); FAS 19, ¶¶203-205 (“[T]here is an important difference between exploratory dry holes and development dry holes. The purpose of an exploratory well is to search for oil and gas. The existence of future benefits is not known until the well is drilled. Future benefits depend on whether reserves are found.”).

<sup>91</sup> ASC 932-360-25-14 (“Development costs shall be capitalized as part of the cost of an entity’s wells and related equipment and facilities. Thus, all costs incurred to drill and equip development wells, development-type stratigraphic test wells, and service wells are development costs and shall be capitalized, whether the well is successful or unsuccessful. Costs of drilling those wells and costs of constructing equipment and facilities shall be included in the entity’s uncompleted wells, equipment, and facilities until drilling or construction is completed.”).

<sup>92</sup> ASC 932-360-25-12 and 13 (emphasis added) (“Development costs are incurred to obtain access to proved reserves and to provide facilities for extracting, treating, gathering, and storing the oil and gas. More specifically, development costs, including depreciation and applicable operating costs of support equipment and facilities (see paragraph 932-360-25-16) and other costs of development activities, are costs incurred to . . . [d]rill and equip **development wells**, development-type stratigraphic test wells, and **service wells** . . .”); *see also* ASC Master Glossary (emphasis added) (“A **service well** is a well drilled or completed for the purpose of supporting production in an existing field. Wells in this class are drilled for the following specific purposes: **gas injection (natural gas, propane, butane, or flue gas), water injection, steam injection, air injection**, salt-water disposal, water supply for injection, observation, or injection for in-situ combustion.”).

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Shen-3 as development cost under ASC 932-360-25-14 was inappropriate, because it was an exploratory well.

3. *The Company's Q3 2016 Accounting Position To Justify the Suspension of Shen-3 Costs Until Q3 2016 Is Unsupported*
  
65. Instead of applying directly relevant GAAP as required as of Q4 2014, and without referencing alternative supporting accounting standards in the Codification, the Company continued to suspend Shen-3 well costs until Q3 2016. Although Shen-3 well costs were written off as a dry hole as of September 30, 2016, to justify its capitalization of Shen-3 well costs through Q2 2016, Anadarko documented that the Shen-3 well costs were, more generally, “exploration costs” that could be capitalized under the successful efforts method.<sup>93</sup> More specifically, the Company noted that given Shen-3’s possible future use as an injection well in the unproved Shenandoah project, related costs could (1) be considered exploration costs, and (2) those costs could provide future benefit to Anadarko during Shenandoah’s development phase.<sup>94</sup>
  
66. Beyond the overarching failings described above, including conflicting, relevant GAAP precluding the capitalization of Shen-3, Anadarko’s subsequently documented accounting argument (in Q3 2016) is flawed because of the following additional issues:
  - a. No specific basis existed in GAAP to support Anadarko’s flawed accounting conclusion that Shen-3 costs could be suspended if a reasonable possibility existed that the well could be used as an injection well at the unproved Shenandoah project area;

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<sup>93</sup> Q3 2016 – Shenandoah-3 Suspended Well Accounting Analysis dated November 10, 2016, APC-01720564 at 0566.

<sup>94</sup> See, e.g., Q3 2016 – Shenandoah-3 Suspended Well Accounting Analysis dated November 10, 2016, APC-01720564 at 0565; Demand Letter Investigation updated January 20, 2017, KPMG\_APc\_eA\_0009644.

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- b. The “reasonable possibility” threshold inherent in the Company’s assumption, even if true, fails to satisfy the FASB’s conceptual framework definition of an asset (*i.e.*, a “probable” future economic benefit).<sup>95</sup>
- c. Anadarko subsequently asserted that the Company’s Chief Accounting Officer, Cathy Douglas, “relied upon the injection well capability of Shenandoah-3 as the predominant reason for suspending the well costs at year-end 2014.”<sup>96</sup> However, I have not seen contemporaneous objective evidence demonstrating that a “reasonable possibility”<sup>97</sup> existed that Shen-3 could be used as an injection well or a development well as of December 31, 2014. Instead, I have only seen references which amount to speculation or general lack of confidence that Shen-3 could be used as an injection well or development well. For example:
  - 1. A sentence included in the Company’s Q4 2014 draft suspended well cost memo pertaining to Shen-3, noting only the following sentence reflecting that management was evaluating whether Shen-3 **might** have future utility as an injection well, **assuming** Shenandoah moved to the development phase:

Management **is also evaluating** future utility of this well-bore as an injection well for the field, or as a development well to sidetrack into oil-bearing sands.<sup>98</sup>

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<sup>95</sup> FASB Statement of Financial Accounting Concepts No. 6, ¶25. (“Assets are probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events.”); *see also* FAS 19, ¶143. (“In the presently accepted financial accounting framework, an asset is an economic resource that is expected to provide future benefits and nonmonetary assets generally are accounted for at the cost to acquire or construct them. Costs that do not relate directly to specific assets having identifiable future benefits normally are not capitalized—no matter how vital those costs may be to the ongoing operations of the enterprise. If costs do not give rise to an asset with identifiable future benefits, they are charged to expense or recognized as a loss.”).

<sup>96</sup> Q3 2016 – Shenandoah-3 Suspended Well Accounting Analysis dated November 10, 2016, APC-01720564 at 0565.

<sup>97</sup> Under GAAP, “reasonably possible” is defined as “more than a remote but less than likely.” ASC Master Glossary.

<sup>98</sup> Email from Michael Cieslak dated January 6, 2015, APC-00001863 at 1864. *see also* email from Tim Trautman dated December 29, 2014, ANACOP00025913.

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2. As noted above, on January 7, 2015, Jeff Pachman, Anadarko's Project Land Advisor, further conveyed Conoco's accounting position to various Company employees that "because the [Shen-3] **well found no hydrocarbons and has no future utility, the cost will be written off as a dry hole.**"<sup>99</sup>
3. Consistent with this understanding, on January 8, 2015, Anadarko's partner, Conoco's Deepwater Asset Development team, in connection with its determination to dry hole expense Shen-3, internally notified employees that Shen-3 was "fully water-wet," and was not likely to be considered as a future sidetrack well:

Data from both the original and bypass well bores confirmed that the well did encounter reservoir quality sand but **was fully water-wet**. The WR52-2 was P&A'd under a Temporary Abandonment classification but meets the criteria for Permanent Abandonment. The Temporary classification was used to allow the flexibility to re-enter the well for an up-dip sidetrack. There is no current plan to re-enter the WR52-2 and it is believed that if the operator is successful in the next appraisal well a sidetrack of WR52-2 would **not be considered in the near future or likely at all.**<sup>100</sup>

4. In a January 23, 2015 email to Marathon's Controller and CAO, Gary Wilson, Ms. Douglas communicated that Anadarko "**will be assessing** the future utility of the wellbore" as a "possible sidetrack, injector, etc."<sup>101</sup> This again indicates that no substantive analysis as to Shen-3's possible use as an injection or development well had occurred at Anadarko. Indeed, as discussed above, Marathon recognized Shen-3 to be a dry hole for accounting purposes in Q4 2014.
5. In a February 12, 2015 email, Mr. Leyendecker stated, without reference to underlying support, that Shen-3 was "**potentially useable** as a future water

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<sup>99</sup> Email from Diane Sease dated January 7, 2015, APC-00001795-1796 at 1795 (emphasis added).

<sup>100</sup> Email from Pamala Johnson dated January 8, 2015, ANACOP00000354-0355 at 354 (emphasis added).

<sup>101</sup> Email from Cathy Douglas dated January 23, 2015, APC-00001867-1868 at 1867 (emphasis added).

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injection well for pressure maintenance.”<sup>102</sup> However, while acknowledging internal Anadarko communications on or before February 2, 2015 that ““Shen-3 cannot be utilized as a water injector given its current design,”” Mr. Leyendecker further testified that he did not recall seeing any “in-depth drilling engineering analysis that said [Shen-3] could be used as an injector well.”<sup>103</sup> Moreover, after reading from internal communications from Mr. Trautman noting that “re-entry” of Shen-3 ““would be risky (mechanically),”” Mr. Leyendecker further testified to his understanding in February 2015 that Shen-3 could not be sidetracked.<sup>104</sup>

67. While an internal analysis and memo does appear to have been performed and prepared by Anadarko regarding the use of Shen-3 as an injection or development well, it does not appear to have occurred until Q3 2016. Therein, the Company concluded that Shen-3 had a “low probability of becoming a water injection well conversion.” Specifically, during 2016, Mr. Williams wrote about the Company’s efforts to understand the utility of Shenandoah 3 as a future water injection well and its conclusion, stating in part:

[T]he most recent concept selection work suggests that the Shenandoah #3 wellbore (WR 52-2) is not in an optimal location as a water injector and for waterflood oil recovery. This is despite the fact that an east-west trending fault, potentially isolating the Shen 3 well from a large updip waterflood area, was identified in Q3, 2014 [sic] not invoked in the model. Currently, the Shenandoah G&G team has seismic evidence (although not with certainty and approximated to be 50% probable) that an east-west trending fault does exist north of the Shenandoah 3 wellbore which may inhibit the waterflood front from influencing and increasing oil recovery in up-dip producing wells. As a result, the Shenandoah 3 is currently not being considered a candidate for water injection well conversion if the project moves forward to the sanctioning (FID) phase.

\* \* \*

In summary, with the latest results of the ongoing subsurface waterflood studies and the mechanical challenges of converting this well to

<sup>102</sup> Email from Jeff Pachman dated February 12, 2015, APC-00001791-1792 at 1791 (emphasis added); *see also* Deposition of Patrick McGrievy, 173:22-175:5.

<sup>103</sup> Deposition of Ernest Leyendecker, 196:02-202:4; Email from Chip Oudin dated February 2, 2015, APC-00001928.

<sup>104</sup> Deposition of Ernest Leyendecker, 91:8-95:12; Email from Tim Trautman dated January 29, 2015, APC-00158152.

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a viable waterflood injection well, the wellbore is considered to have a low probability of becoming a water injection well conversion.<sup>105</sup>

68. In connection with this analysis, Anadarko wrote-off Shen-3 as a dry hole during Q3 2016 asserting that a reasonable possibility no longer existed that Shen-3 could be used as an injection well. However, this write-off was untimely. Anadarko's documented assertion that capitalization of Shen-3 between Q4 2014 and Q2 2016 was acceptable because a "reasonable possibility" existed that the well would be used an injection well was not supported by an appropriate analysis, inconsistent with the documents and testimony referenced above in paragraph 66 and contradicted by relevant GAAP.

**C. ANADARKO REPEATEDLY FAILED TO EXPENSE AND DISCLOSE MILLIONS OF DOLLARS IN SHEN-3-RELATED DRY HOLE EXPENSES DURING EACH OF THE RESPECTIVE FINANCIAL REPORTING PERIODS BETWEEN DECEMBER 31, 2014 AND JUNE 30, 2015, IN VIOLATION OF GAAP**

69. Anadarko's continued capitalization of Shen-3 violated GAAP. Specifically, from the financial reporting periods between December 31, 2014 and June 30, 2016, Anadarko improperly capitalized approximately \$63.6 million of suspended drilling costs relating to Shen-3.<sup>106</sup>
1. ***Anadarko's Overstatement and Disclosure of Shen-3 Suspended Well Costs Were Material***
70. As set forth below, the Company's related misstatement was material to each of Anadarko's respective financial reporting periods beginning December 31, 2014 and ended September 30, 2016. In this regard, Anadarko's recurring misstatement exceeded well-established SEC quantitative materiality example benchmarks (*i.e.*, 5% of an item). Qualitatively, the Company's misstatements and related disclosures: (i) allowed Anadarko to report pre-tax profits instead of losses during 2014, and/or (ii) pertained to an exploration project that was announced to have a potentially significant role in the Company's operations and profitability. In this regard, Anadarko regularly asserted the importance of Shenandoah in

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<sup>105</sup> Memo and attachments, APC-01737346-7348.

<sup>106</sup> Offshore Exposure - Dec 2014 \_Final\_ Suspended & Drilling, APC-00156333.

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the Gulf of Mexico, characterizing the Shenandoah Basin as an approximate “\$2-\$4 Billion Net Opportunity” during 2014.<sup>107</sup>

71. GAAP and SEC disclosure requirements discussed above apply to financial reporting requirements that are “material” to Anadarko’s financial statement users.<sup>108</sup> SEC Rule 12b-2 defines “material” as information for “which there is a substantial likelihood that a reasonable investor would attach importance in determining whether to buy or sell the securities registered.”<sup>109</sup> In 1999, the SEC staff issued Staff Accounting Bulletin No. 99, Materiality (“SAB 99”). SAB 99, codified under GAAP at ASC 250-10-S99, which provides further guidance with respect to materiality and states that a misstatement or omission in financial statements is material if “there is a substantial likelihood that a reasonable person would consider it important.”<sup>110</sup>

[T]he accounting literature is in substance identical to the formulations used by the courts in interpreting the federal securities laws. **The Supreme Court has held that a fact is material if there is – a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the “total mix” of information made available [fn 27] ...**

In the context of a misstatement of a financial statement item, while the “total mix” includes the size in numerical or percentage terms of the misstatement, it also includes the factual context in which the user of financial statements would view the financial statement item. ... **Materiality concerns the significance of an item to users of a registrant’s financial statements. A matter is ‘material’ if there is a substantial likelihood that a reasonable person would consider it important.**

<sup>FN</sup>27 TSC Industries v. Northway, Inc., 426 U.S. 438, 449 (1976). See also Basic, Inc. v. Levinson, 485 U.S. 224 (1988). As the Supreme Court has noted, determinations of materiality require ‘delicate assessments of the inferences a ‘reasonable shareholder’ would draw from a given set of facts

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<sup>107</sup> 2014 Anadarko Investor Conference Presentation, March 4, 2014, p. 83.

<sup>108</sup> 17 CFR §240.12b-20.

<sup>109</sup> 17 CFR §240.12b-2.

<sup>110</sup> ASC 250-10-S99.

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and the significance of those inferences to him. [...]’ TSC Industries, 426 U.S. at 450.<sup>111</sup>

72. ASC 250-10-S99 further notes **that an assessment of materiality requires an evaluation of both quantitative and qualitative factors.**<sup>112</sup> As discussed below, quantitative and qualitative factors demonstrate that Anadarko’s recurring misstatements and related disclosure omissions were material under GAAP.

- a) Quantitative Factors Reflect That Anadarko’s Failure to Properly Write-off Shen-3 drilling Costs to Dry Hole Expense Was Material

73. Quantitatively, SEC guidance acknowledges the practice of applying a “rule of thumb” quantitative threshold (*e.g.*, 5% of an item) to provide a “preliminary” basis for evaluating materiality. For example, ASC 250-10-S99 states:

**The use of a percentage as a numerical threshold, such as 5%, may provide the basis for a preliminary assumption that - without considering all relevant circumstances - a deviation of less than the specified percentage with respect to a particular item on the registrant’s financial statements is unlikely to be material.** The staff has no objection to such a “rule of thumb” as an initial step in assessing materiality. **But quantifying, in percentage terms, the magnitude of a misstatement is only the beginning of an analysis of materiality;** it cannot appropriately be used as a substitute for a full analysis of all relevant considerations.

\* \* \*

**Evaluation of materiality requires a registrant and its auditor to consider all the relevant circumstances, and the staff believes that there are numerous circumstances in which misstatements below 5% could well be material.**<sup>113</sup>

74. Anadarko’s misstatements and related disclosure omissions within the Company’s relevant financial statements repeatedly exceeded this 5% threshold. For example, the proper inclusion and disclosure of Shen-3 related dry hole expense as of December 31, 2014 would have negatively impacted Anadarko’s respectively reported annual Income (Loss) before taxes and disclosed dry hole expense by an amount much greater than 5%.

<sup>111</sup> ASC 250-10-S99 (emphasis added).

<sup>112</sup> ASC 250-10-S99 (emphasis added).

<sup>113</sup> ASC 250-10-S99 (emphasis added).

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75. Moreover, given the Company's repeated failure to correct its Shen-3 related misstatement until Q3 2016, GAAP requires that a quantitative materiality assessment be conducted using both a rollover method and an iron curtain approach.<sup>114</sup> As stated in footnote 114, (i) the rollover approach quantifies a misstatement based on the amount of the error originating in the current period income statement, and (ii) the iron curtain approach quantifies a misstatement based on the effects of correcting the misstatement existing in the balance sheet at the end of the respective current period, irrespective of the misstatements year(s) of origination. As reflected in the table below, Anadarko's misstatement exceeded 5% of the following relevant disclosed amounts (*i.e.*, Income (loss) before taxes, Suspended well costs, and Dry hole expense) for one or more of these criteria using both the rollover approach (*e.g.*, Q4 2014, FY 2014 impact, Q3 2016), and the iron curtain approach (*e.g.*, Q1 2015 through Q2 2016):<sup>115</sup>

<sup>114</sup> The SEC and codified GAAP recognize that the most commonly used in practice to accumulate and quantify misstatements are generally referred to as the “rollover” and “iron curtain” approaches. The rollover approach quantifies a misstatement based on the amount of the error originating in the current period income statement. Thus, this approach ignores the effects of correcting the portion of the current period balance sheet misstatement that originated in prior periods. The iron curtain approach quantifies a misstatement based on the effects of correcting the misstatement existing in the balance sheet at the end of the current period, irrespective of the misstatements year(s) of origination. SEC guidance further states that a registrant's financial statement would require adjustment when either of the rollover or iron curtain approaches result in quantifying a misstatement that is material, after considering all relevant quantitative and qualitative factors:

The staff believes registrants must quantify the impact of correcting all misstatements, including both the carryover and reversing effects of prior year misstatements, on the current year financial statements. The staff believes that this can be accomplished by quantifying an error under both the rollover and iron curtain approaches as described above and by evaluating the error measured under each approach. **Thus, a registrant's financial statements would require adjustment when either approach results in quantifying a misstatement that is material**, after considering all relevant quantitative and qualitative factors.

ASC 250-10-S99 (emphasis added).

<sup>115</sup> **Note:** Pursuant to required use of the iron curtain and rollover methods, these calculations evaluate Anadarko's ongoing failure to expense Shen-3 and related misstatement across the various periods presented. These percentages were calculated using Offshore Exposure - Dec 2014\_Final\_Suspended & Drilling, APC-00156333; 2015.03.31 Q1.GG.10SW AGING AND NET CHANGES - 04.20, KPMG\_APc\_0021079; 2015.07.14 Q2.GG.10 SW AGING, KPMG\_APc\_0009967; 2015.10.14 Q3.GG.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0003445; 2016.01.19 GG.4.A.8.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0006098; 2016.03.31 Q1.GG.10 SW AGING AND

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Percentage Impact of Misstatements on Various Financial Metrics					
	Q4 2014	FY 2014	Q1 2015	Q2 2015	Q3 2015
Income (Loss) Before Income Taxes	14.1%	117.9%	1.4%	34.8%	2.1%
Suspended Exploratory Well Costs	4.2%	4.2%	4.2%	3.8%	5.8%
Dry Hole Expense	27.1%	8.4%	229.0%	495.4%	7.9%
	Q4 2015	FY 2015	Q1 2016	Q2 2016	Q3 2016
Income (Loss) Before Income Taxes	2.9%	0.7%	4.6%	6.9%	6.3%
Suspended Exploratory Well Costs	5.7%	5.7%	5.7%	5.1%	5.5%
Dry Hole Expense	33.1%	6.1%	580.0%	1276.0%	31.4%

b) Qualitative Factors Further Demonstrate That Anadarko’s Failure to Properly Account for and Disclose Shen-3 Drilling Costs Was Material

76. While the assessment of quantitative factors is necessary and provides a preliminary basis for establishing the materiality of Anadarko’s misstatements and disclosure omissions, the consideration of qualitative factors further supports that conclusion. In this regard, ASC 250-10-S99 recognizes that the evaluation of qualitative factors is an integral component of a materiality analysis. For example, the SEC Staff has stated that qualitative factors may render a quantitatively small misstatement material:

[I]f qualitative factors can cause small errors to be material, can qualitative factors cause large errors to be not material? With the benefit of hindsight, it’s pretty clear that the answer is yes.<sup>116</sup>

77. ASC 250-10-S99 identifies several considerations that may render material quantitatively small misstatements, including the following examples:

- a. “whether the misstatement changes a loss into income or visa versa”;

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NET CHANGE, KPMG\_APc\_eA\_0007094; 2016.06.30 Q2.GG.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0007189; GG.4.G.3.40 9-30-2016 Dry Hole Expense, KPMG\_APc\_eA\_0008256 and reported financial statement amounts included in Anadarko’s 2014 Form 10-K; Current Report on Form 8-K filed February 2, 2015, Q1 2015 Form 10-Q; Q2 2015 Form 10-Q; Q3 2015 Form 10-Q; 2015 Form 10-K; Current Report on Form 8-K filed February 1, 2016; Q1 2016 Form 10-Q; Q2 2016 Form 10-Q; Q3 2016 Form 10-Q.

<sup>116</sup> Todd E. Hardiman, Associate Chief Accountant, SEC Division of Corporation Finance, “Remarks before the 2007 AICPA National Conference on Current SEC and PCAOB Developments,” December 11, 2007.

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- b. “whether the misstatement concerns a segment or other portion of the registrant’s business that has been identified as playing a significant role in the registrant’s operations or profitability”; and
  - c. “whether the misstatement has the effect of increasing management’s compensation.”<sup>117</sup>
78. These qualitative considerations further support my opinion that Anadarko’s failure to properly expense and disclose suspended Shen-3 drilling costs was material. For example, the Company’s failure to properly recognize Shen-3 costs as a dry hole expense during the year ended December 31, 2014 allowed Anadarko to report income before taxes. If these costs had been expensed during 2014, Anadarko would have reported a net loss before taxes.
79. Moreover, given Anadarko’s asserted potential significance of the Shenandoah project, including Shen-3, on the Company’s future operations and profitability, Anadarko’s disclosures asserting the success of Shen-3, despite it being a dry hole, further supports the materiality of Anadarko’s misstatement and related disclosure omissions.<sup>118</sup> Indeed, Robert Gwin, Anadarko’s former Chief Financial Officer and President, acknowledged the Company’s stock price increased following the discovery of Shen-2 and internal communications speculating that Anadarko’s stock would exceed \$100 per share because of the Shenandoah basin project.<sup>119</sup>

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<sup>117</sup> ASC 250-10-S99.

<sup>118</sup> ASC 250-10-S99 (“Among other factors, the demonstrated volatility of the price of a registrant’s securities in response to certain types of disclosures may provide guidance as to whether investors regard quantitatively small misstatements as material. Consideration of potential market reaction to disclosure of a misstatement is by itself ‘too blunt an instrument to be depended on’ in considering whether a fact is material. When, however, management or the independent auditor expects (based, for example, on a pattern of market performance) that a known misstatement may result in a significant positive or negative market reaction, that expected reaction should be taken into account when considering whether a misstatement is material.”).

<sup>119</sup> Ex. 441; Deposition of Robert Gwin, 77:18-79:15 (“Q And one of the headlines that they deem important for that day related to the Shenandoah results, Shenandoah 2 results; correct? A I have to go back down. I know it says something about ConocoPhillips. Yes, that’s correct. Q And ConocoPhillips was a partner on the Shenandoah prospect; right? A That’s correct. Q And so after you received this briefing, Chuck Meloy responded to -- replied all with a jubilant response; right? A Yes, he did. Q It was, ‘Booyah and thumbs up to our exploration team once again’? A Yes. Q That was referring to the news at

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80. In this regard, the importance of both Shenandoah and Shen-3 were repeatedly communicated by Anadarko's management and others. For example:
- a. As early as February 2013, Anadarko's management characterized Shenandoah as a "**big exploration**" project, noting further that it was "**very encouraged**" by what the Company was seeing.<sup>120</sup>
  - b. In May 2013, Mr. Walker observed that "[a]ccelerating the value of the newly discovered Shenandoah Basin" was "**critical**" given that it was "**one of the company's largest discoveries ever in the Gulf of Mexico.**"<sup>121</sup>
  - c. Weeks later, Frank Patterson, Anadarko's Senior Vice President of Exploration, similarly observed that "[i]n the Gulf of Mexico, Ernie [Leyendecker] is very excited about the Gulf of Mexico. How can you not get excited when you start the year with a well, the Shenandoah appraisal well, where you have over 1,000 feet of pay. **Shenandoah could end up being one of the largest discoveries in the Gulf of Mexico, we don't know. We have appraisal work that we have to do so we're pretty excited about that.**"<sup>122</sup>
  - d. Expressing continued excitement about Shenandoah in the Company's Q2 2013 earnings call, Robert Daniels, Anadarko's Executive Vice President - International &

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Shenandoah; right? A Yes. It appears to be. Chuck ran our development organization and so he was congratulating exploration organization on their success with that well. And Al Walker responds with a 'I will second that. We are on our way to three digits.' And what do you -- what did you understand Al Walker's email to refer to? A I don't know. I wouldn't speculate. I don't remember getting the email even though I was clearly on it and then I responded to everyone congratulations as well obviously. Q And his reference -- Mr. Walker's reference to three digits, do you understand that to be the stock price? A It could have been, yes. I don't know where our stock was trading at that time. So I don't know that it was. It could have been. Q It's a reasonable assumption; right? A I think it's reasonable. Q And so Al Walker is saying that the good exploration news from Shenandoah meant that the Anadarko stock price was on its way to over \$100 per share? A I think it's reasonable to assume that, but again, I don't know what he's specifically referring to. Q It's a reasonable conclusion? A I think as I already stated, it's reasonable.").

<sup>120</sup> Shareholder/Analyst Call, February 20, 2013 (emphasis added).

<sup>121</sup> Q1 2013 Earnings Call, May 7, 2013, p. 5 (emphasis added).

<sup>122</sup> Company Conference Presentation, May 22, 2013, p. 8 (emphasis added).

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Deepwater Exploration, stated that Anadarko was “excited about the whole Shenandoah mini-basin. **We have the big discovery at Shenandoah.**”<sup>123</sup>

- e. When further asked by an analyst in September 2013 whether a third well would be drilled in Shenandoah, Mr. Walker stated: “**You bet. We will be looking at a lot of things in Shenandoah. We’re pretty excited, as you might imagine, with 1,000 feet of pay.**”<sup>124</sup> More generally, Mr. Walker expressed his excitement about the Company’s future given the Gulf of Mexico, including Shenandoah, noting that:

[W]e’ve come out of this with some very significant results. And I think you’ve heard us talk a lot about the Shenandoah-2 recently. And I think Shenandoah and that whole mini basin is something that Ernie Leyendecker and our Gulf of Mexico exploration folks are just delighted and very excited about. We had about 1,000 feet of pay in the second Shenandoah well. We also had around 400 feet of pay in the Coronado well, and in the Yucatan well, we were at about 120 feet of pay.

Now we’re the only company that’s in all 3 of these. So we have a bit of a unique view of what this basin might be able to provide in the future.<sup>125</sup>

- f. In late 2013, when asked about future prospects that support the Company’s cash flows, Mr. Gwin conveyed that Shenandoah stood out:

Shenandoah, I think, is one that’s easy to look at and say if you saw what we did with Lucius and that Lucius spar I showed you, we’re building an identical spar. We designed it once and we’re building it twice for Heidelberg. **If we were to look at what’s the kind of the most attractive next step here, even though, obviously, there’s a lot of additional work to do, Shenandoah stands out.**<sup>126</sup>

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<sup>123</sup> Q2 2013 Earnings Call, July 30, 2013, p. 8 (emphasis added).

<sup>124</sup> Company Conference Presentation, September 12, 2013, p. 1 (emphasis added).

<sup>125</sup> Company Conference Presentation, September 12, 2013, p. 8 (emphasis added).

<sup>126</sup> Company Conference Presentation, September 12, 2013, p. 13 (emphasis added).

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- g. In November 2013, Mr. Leyendecker described Shenandoah as “one of the most exciting things” that he has “done” and “seen” in his career. He expressed this excitement in terms of being for both the “industry and for Anadarko.”<sup>127</sup>
- h. Mr. Daniels described the Company’s next exploratory steps, including its desire to find oil/water contact in February 2014, noting:

Of course, the 2013 appraisal well found 1,000 feet of pay and no oil/water contact, so we’re going to be trying to push the oil/water contact out and look at the aerial extent of these reservoirs, which we do think are very are [sic] aerial-extensive based on the drilling we’ve done in here.<sup>128</sup>

- i. During its March 2014 investor conference presentation, the Company described the Shenandoah Basin as a “\$2-\$4 Billion Net Opportunity.”<sup>129</sup>
- j. Anadarko’s management continued to reference the success of Shenandoah during its May 2014 conferences calls, describing the basin as “being quite a sizable potential producer”<sup>130</sup> and “one of the best-looking logs … seen in a long time, big, thick, thousand foot-type of pay.”<sup>131</sup>
- k. In October 2014, Mr. Daniels publicly recognized the specific importance of Shen-3 to the Shenandoah project stating in part that Anadarko was “still excited about the Shenandoah Basin,” and that “**Shenandoah 3 is going to be real key for us.**”<sup>132</sup> Less than one month later, Mr. Daniels reiterated his excitement about Shenandoah, noting further that the drilling of Shen-3 was almost complete and the Company would provide an update on the results during its next conference call.<sup>133</sup>

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<sup>127</sup> Company Conference Presentation, November 22, 2013, p. 7 (emphasis added).

<sup>128</sup> Q4 2013 Earnings Call, February 4, 2014, p. 16.

<sup>129</sup> 2014 Anadarko Investor Conference Presentation, March 4, 2014, p. 83.

<sup>130</sup> Q1 2014 Earnings Call, May 6, 2014, p. 12.

<sup>131</sup> Company Conference Presentation, May 20, 2014, p. 8.

<sup>132</sup> Q3 2014 Earnings Call, October 29, 2014, p. 9 (emphasis added).

<sup>133</sup> Company Conference Presentation, November 13, 2014, p. 7.

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81. While the drilling results became evident during the Company's Q4 2014 financial reporting period, Anadarko's failure to write off its "unsuccessful" Shen-3 drilling costs as dry hole expense was a significant failure, especially in consideration of the aforementioned positive expectations of the Shenandoah project. Of further significance was Anadarko's other 2014 disclosures that did not explicitly acknowledge that Shen-3 was a dry hole or wet well.<sup>134</sup> Instead, Anadarko disclosed the favorable outcome of its Shen-3 well, characterizing it as a "very successful appraisal well,"<sup>135</sup> and in March 2015 generally noted that Shenandoah was "[a]dvancing [t]oward [d]evelopment."<sup>136</sup>
82. More specifically, following Anadarko's Q4 2014 earnings release and operations report (which contained positive and incorrect statements regarding Shenandoah, particularly about finding 50% more resources rather than actually finding less, see for example paragraph 41, and its related footnotes),<sup>137</sup> BofA Merrill Lynch's Investment Researcher, Douglas Blyth Leggate, referenced Anadarko's report regarding Shenandoah, including Shen-3, and inquired about the Company's plans for project development.<sup>138</sup> In response,

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<sup>134</sup> Q4 and Full Year 2014 Earnings Call, February 3, 2015, Anadarko Current Report on Form 8-K, February 2, 2015, Anadarko 2014 Form 10-K.

<sup>135</sup> 2015 Earnings Guidance Update Call, March 3, 2015, p. 12 ("Let's look at some more details of a couple of our focus areas, starting in the deepwater Gulf of Mexico. We're excited about the advancement at Shenandoah. We pushed down-dip on Shenandoah 3, searching for the oil-water contact, looking for reservoir continuity and quality and to get a core in the down-dip portions of the reservoir. This was a very successful appraisal well.").

<sup>136</sup> 2015 Anadarko Investor Conference Call Presentation, March 3, 2015, p. 47.

<sup>137</sup> Fourth-Quarter 2014 Operations Report dated February 2, 2015, APC-00002814-2830 at 2825 ("Drilling of the second Shenandoah appraisal well, Shenandoah-3, concluded in the quarter. The Shenandoah-3 well found approximately 50% (1,470 feet) more of the same well-developed reservoir sands 1,500 feet down-dip and 2.3 miles east of the Shenandoah-2 well, which encountered more than 1,000 feet of net oil pay in excellent quality, Lower Tertiary-aged sands. The Shenandoah-3 well confirmed the sand depositional environment, lateral sand continuity, reservoir qualities and down-dip thickening. The well also enabled the projection of oil/water contacts based on pressure data, and reduced the uncertainty of the resource range."); Current Report on Form 8-K dated February 2, 2015 ("Appraisal activity offshore Côte d'Ivoire at the Paon discovery and in the Gulf of Mexico at the Shenandoah discovery continued to validate the company's geologic models around these apparent commercial discoveries.")

<sup>138</sup> Q4 and Full Year 2014 Earnings Call, February 3, 2015, p. 7.

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on February 3, 2015, Mr. Daniels conveyed management's excitement at Shenandoah and the "very good" project results:

**At Shenandoah, start there, we're so excited about what we're seeing there. We've got very good results for what we set out to do at the most recent appraisal well.** If you remember, that appraisal well was several miles away and about 1,500 feet down dip of the #2. I guess 2.3 miles to the east and 1,500 feet down dip. And we were looking to see if we could establish oil-water contacts at that location, so we knew we'd be very far down dip and close to that. We wanted to look at the lateral sand and the reservoir continuity. We wanted to look at the quality of the sands in that area because as we get down closer to the oil-water contact, we have to get an idea about the drive mechanism. And would we have an effective water drive and -- for a recovery. We had a model that we would see potential interval expansion as we moved off structure. And then we wanted to get pressure data to show pressure continuity into the other #2 well. **So overall, we're looking to understand the oil in place better and the potential recovery mechanisms.** And if you look at the results, we really did all of that. We have excellent lateral sand continuity. The packages are all present. They're very well correlatable, they've expanded. So that model of expansion did work out. **We ended up with about 1,470 feet of gross sand section versus 1,000 feet that we had in the #2 well. The oil-water contacts were not encountered in the well. But based on the pressure data, we were able to project those up. So we got a much better handle on the oil in place and that has expanded with more confidence on it. So that was a very positive thing. Reservoir quality was good, so that gives us a lot of confidence on the potential for the water drive. So we've got a lot more confidence on our geologic model on the eastern side.**<sup>139</sup>

83. Anadarko reiterated its Shen-3 well results in its 2014 Annual Report on Form 10-K.<sup>140</sup> Notably, these and other disclosures (*e.g.*, managements' disclosed assertion that the Shenandoah basin represented a \$2-\$4 billion net opportunity)<sup>141</sup> are in contrast to the "bad

<sup>139</sup> Q4 and Full Year 2014 Earnings Call, February 3, 2015, p. 8 (emphasis added).

<sup>140</sup> Anadarko 2014 Form 10-K, p. 9 ("The Company spud the Shenandoah-3 well, its second appraisal well at the Shenandoah discovery, in the second quarter of 2014. The well finished drilling at the end of 2014 and found approximately 50% (1,470 feet) more of the same reservoir sands 1,500 feet down-dip and 2.3 miles east of the Shenandoah-2 well, which encountered over 1,000 feet of net oil pay in excellent quality Lower Tertiary-aged sands. The Shenandoah-3 well confirmed the sand depositional environment, lateral sand continuity, excellent reservoir qualities, and down-dip thickening. The well also enabled the projection of oil-water contacts based on pressure data and reduced the uncertainty of the resource range.").

<sup>141</sup> 2014 Anadarko Investor Conference Presentation, March 4, 2014, p. 83.

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news,” “unsuccessful,” “wet well,” and “dry hole” characterizations of Shen-3 noted above beginning at paragraph 41. Moreover, these disclosures were inconsistent with information reflecting that as a result of Shen-3, Anadarko’s estimated gross oil reserves in the Shenandoah area actually decreased from a mean 1200 MMBOE after drilling Shen #2, to a mean of between 740 MMBOE (with fault) and 920 MMBOE (without fault) (a 23% to 38% decrease in estimated oil reserves).<sup>142</sup>

84. In this regard, Patrick McGrievy, Anadarko’s former Deepwater Gulf of Mexico General Manager, testified that based on the preliminary results from Shen-3, there were concerns regarding Shenandoah’s size and commerciality.<sup>143</sup> Mr. McGrievy further testified that the findings from Shen-3 resulted in a significant downward revision to the resource size of Shenandoah.<sup>144</sup>

<sup>142</sup> Email from Jake Ramsey with Attached Resource Estimate dated November 22, 2014, APC-00617381; Shenandoah Resource Estimate APC-00617383. *See also* email from Pat McGrievy dated January 26, 2015, APC-00863988-3989.

<sup>143</sup> Deposition of Patrick McGrievy, 147:15-149:4 (“And Lea Frye’s e-mail on October 1st, 2014, says, ‘Dan from COP called me’ -- is that ConocoPhillips? A. Yes, it is. Q. – ‘and wanted to chat. Based on Shen 1 pressures and the new interpreted raft areas COP is concerned. He has run some volume sensitivities with new maps and OWC variance and is seeing in place volumes basically cut in half. They are very concerned about size and commerciality.’ [As read] Does that refresh your recollection about what ConocoPhillips’ concerns were around this time? A. Yes. Q. And so at this point, based on preliminary results from Shen 3, they were concerned about Shenandoah’s size and commerciality? A. Yes. Q. And they were seeing the volumes being cut in half? A. Evidently so, as per Lea Frye, right. ... Q. And do you have any reason to doubt that she conveyed to you the same concerns that Lea relayed in this e-mail? A. I don’t have any reason to believe otherwise, no. Q. And that’s -- that’s generally your recollection, that ConocoPhillips was concerned at this point in time once preliminary results came from Shen 3? A. Yeah, I think so.”).

<sup>144</sup> Deposition of Patrick McGrievy, 149:17-150:14 (“Q. And the well results from Shen 3 which found no hydrocarbons resulted in a significant downward revision to the resource size of Shenandoah 3? A. Yep. Yes, it would have. Q. So ConocoPhillips had to about cut in half internally -- internally. At the development team, was it also cut in half? A. Can you re- -- repeat the question again? I’m sorry. Q. So just reading this and referring to the volumes being cut in half -- A. Right. Q. -- that was ConocoPhillips’ view. Was that also the view of the development team? A. I don’t recall specifically on what volumes or how much we cut our volumes back by. It could have been. Q. But it was -- A. I just don’t recall. Q. -- it was a significant revision? A. It was a large revision, yeah, downward.”).

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85. Also, reflecting on the sensitivity and importance of avoiding making negative comments about the Shenandoah Basin, Anadarko's CEO, Robert Walker<sup>145</sup> and its CFO, Robert Gwin,<sup>146</sup> avoided, in earnings calls or other disclosures, that Shen-3:
- a. Was a wet well.
  - b. Reduced the resource range (MMBOE).
  - c. Had technological challenges.
  - d. Execution risk.
  - e. A major fault.
86. The Shen-3 results and the associated reduction in resource estimates was further significant considering that management's bonus were affected by performance goals that included consideration of MMBOE sales and related reserves (representing an aggregate performance goal weighting factor ranging from 45% - 50%).<sup>147</sup> Although the Shenandoah basin project, including Shen-3, was exploratory in nature and in fact, a dry hole, the failure to appropriately expense Shen-3 as a dry hole expense indicated an increased possibility that the well could be used as a producing well to extract oil resources that could impact management performance goals and related compensation in the future.<sup>148</sup> In this

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<sup>145</sup> Deposition of Robert Walker, *e.g.*, 172:13 – 175:18, and 193:6 – 193:25.

<sup>146</sup> Deposition of Robert Gwin, *e.g.*, 130:19-131:8, 137:16-139:3, 142:22-144:3, 188:17-25, 213:2-16, 228:21-239:71.

<sup>147</sup> See, *e.g.*, Proxy Statement on Form Schedule 14A, March 18, 2016, 42-45; Proxy Statement on Form Schedule 14A, March 23, 2015, 44-46.

<sup>148</sup> See also Deposition of Lea Frye, 20:25-21:15 (“So could you restate -- given what we've talked about, could you restate what the exploration bonus was based on in your experience? A It was based on meeting or exceeding meeting a particular value of MMBOE or millions of barrels of oil equivalent found in a particular year. Q And who set the target for the exploration unit in terms of the MMBOE that were to be found in a particular year? A I would not know who all was involved, but it would have been a higher level of management that set that. Q And who was management at that point in time for exploration? A There was Bob Daniels was senior VP, I believe, if the title is correct.”).

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regard, materiality evaluations under relevant accounting guidance requires a consideration of the “total mix” of information made available.

87. In consideration of both the quantitative and qualitative factors described above, the Company’s failure to properly recognize and disclose the aforementioned unsuccessful findings associated with the Shen-3 dry hole was material to each of the respective financial reporting periods beginning December 31, 2014 and ended September 30, 2016.

**D. GAAP REQUIRED ANADARKO TO IMPAIR AND EXPENSE, ASSETS CAPITALIZED IN CONNECTION WITH THE SHENANDOAH BASIN PROJECT WHEN SUBSTANTIAL DOUBT ABOUT THE PROJECT’S ECONOMIC VIABILITY EXISTED**

88. In addition to having capitalized suspended drilling costs associated with Shen-3, Anadarko capitalized other exploration costs associated with the Shenandoah basin project during the Relevant Period. These amounts included non-producing leasehold (“NPLH”) costs, the suspended well costs associated with other exploration-type wells (*i.e.*, Shen-1, Shen-2, Shen-4, Shen-5, etc.), and other related costs. These collective amounts ranged from approximately \$769.9 million and \$786.6 million between December 31, 2015 and December 31, 2016.<sup>149</sup>
89. Relevant GAAP applicable to unproven properties and exploratory wells, including the Company’s Shenandoah project, required that Anadarko periodically assess whether such properties (and related assets) were impaired during the Relevant Period.<sup>150</sup> As described below, GAAP required that Anadarko impair and expense, Shenandoah basin project assets when “substantial doubt” about the project’s economic viability existed (*i.e.*, by December 31, 2015 as noted in Condition 3). This requirement is consistent with the understanding that unsuccessful exploration efforts be immediately recorded on the income statement as

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<sup>149</sup> 2016.12.31 GG.4.A.8.10 SW AGING AND NET CHANGE, KPMG\_APC\_0008143; 2016.06.30 Q2.GG.10 SW AGING AND NET CHANGE, KPMG\_APC\_eA\_0007189; 2016.01.19 GG.4.A.8.10 SW AGING AND NET CHANGE, KPMG\_APC\_eA\_0006098; 2016.12.31 GG.4.B.1.10 NPLH ROLLFORWARD, KPMG\_APC\_eA\_0007983; 2016.03.31 Q1.GG.10 SW AGING AND NET CHANGE, KPMG\_APC\_eA\_0007094; 2016.09.30 Q3.GG.10 SW AGING AND NET CHANGE, KPMG\_APC\_eA\_0007376; 2014.12.31 GG.4.B.1.10 Q4 NPLH ROLLFORWARD, KPMG\_APC\_eA\_0002543; 2014.12.31 GG.4.A.8.10 SW AGING, KPMG\_APC\_eA\_0002531.

<sup>150</sup> ASC 932-360-35.

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an expense, as discussed in greater detail hereafter.<sup>151</sup> It is further consistent with the Company's actual write off of all related Shenandoah basin project costs (*i.e.*, approximately, \$901.6 million) during the quarter ended March 31, 2017, when internal Anadarko documents reflect that the project was "economically challenged" and the "prevailing viewpoint is that there is little commercial or subsurface value to be gained through continued bi-annual appraisal drilling operations at Shenandoah, currently required for lease maintenance operations."<sup>152</sup>

1. ***The Required Impairment of Shenandoah Completed Exploration Wells and Exploratory-Type Stratigraphic Well Costs***
90. As of the respective financial reporting periods ended between December 31, 2015 and 2016, Anadarko had capitalized suspended exploratory wells and stratigraphic exploratory-type wells costs of between \$252.6 million and \$261.5 million as set forth below:

<b>\$ in millions</b>	<b>12/31/15</b>	<b>3/31/16</b>	<b>6/30/16</b>	<b>9/30/16</b>	<b>12/31/16</b>
Suspended Well Costs	\$260.2	\$261.5	\$259.8	\$252.6	\$255.2

91. ASC 932-360-35 required Anadarko to evaluate its progress in assessing reserves for those wells that had not been written off as dry holes (*e.g.*, Shen-1, Shen-2, etc.).<sup>153</sup> As set forth in the ASC guidance, to the extent that Anadarko failed (1) to make sufficient progress in assessing each specific well's reserves and the economic and operating viability of the project,<sup>154</sup> **or (2) when information obtained raised substantial doubt about the economic or operational viability of the Shenandoah project overall**, the Company was

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<sup>151</sup> See, *e.g.*, Deloitte Oil and Gas, *Accounting, Financial Reporting, and Tax Update*, January 2016, p.2.

<sup>152</sup> Shenandoah Exploration and Development Teams Memo to Executive Committee Re: Recommendation to Proceed with Issuance of SOP at Shenandoah dated April 24, 2017, APC-01283759.

<sup>153</sup> ASC-932-360-35-13 and 18-20.

<sup>154</sup> FASB Staff Position, FAS 19-1 ("The FASB staff believes that exploratory well costs should continue to be capitalized provided the well has found a sufficient quantity of reserves to justify its completion as a producing well and the enterprise is making sufficient progress assessing the reserves and the economic and operating viability of the project."); ASC 932-360-35-19 ("All relevant facts and circumstances shall be evaluated when determining whether an entity is making sufficient progress on assessing the reserves and the economic and operating viability of the project.").

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required to expense capitalized costs associated with its respective wells, net of its salvage value, if any:

If the sufficient progress criteria (see paragraphs 932-360-35-18 through 35-20) is not met, or **if an entity obtains information that raises substantial doubt about the economic or operational viability of the project, the exploratory well or exploratory-type stratigraphic well shall be assumed to be impaired and its costs, net of any salvage value, shall be charged to expense.**<sup>155</sup>

92. Consistent with these requirements, the Company disclosed in its 2015 and 2016 financial statements, that if “... information becomes available that raises substantial doubt as to the economic or operational viability” of a project, including Shenandoah, “the associated costs will be expensed at that time.”<sup>156</sup>
93. Pursuant to the understanding that Plaintiffs will establish that by December 31, 2015 there was substantial doubt that the Shenandoah basin project (as a whole) would be economically viable (*i.e.*, Condition 3), Shenandoah-related assets were impaired under the relevant GAAP set forth above. In this regard and as explicitly stated within ASC 932-360-35-13, all suspended well costs associated with the Shenandoah Basin Project (*i.e.*, see paragraph 90 above) were required to be expensed, net of any salvage value, beginning as of December 31, 2015.

**2. *The Required Impairment of Other Capitalized Costs Associated with The Shenandoah Basin Project***

94. As of the respective financial reporting periods ended between December 31, 2015 and 2016, Anadarko had also capitalized the following other costs which the Company directly attributed to the exploratory Shenandoah basin project:

\$ in millions	12/31/15	3/31/16	6/30/16	9/30/16	12/31/16
Non-Producing Leasehold Asset	\$462.7	\$462.7	\$458.4	\$458.4	\$458.4

<sup>155</sup> ASC 932-360-35-11 and 13 (emphasis added).

<sup>156</sup> Anadarko 2015 Form 10-K, p. 103; Anadarko 2016 Form 10-K, p. 105. See also Deposition of Catherine Green 42:17-21 (“Yes. If there’s substantial doubt about the economic and commercial viability of the project, the well cost or the well costs, if there are multiple suspended wells, should be charged to expense.”).

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<b>\$ in millions</b>	<b>12/31/15</b>	<b>3/31/16</b>	<b>6/30/16</b>	<b>9/30/16</b>	<b>12/31/16</b>
Capitalized Interest	\$46.9	\$54.0	\$61.7	\$68.0	\$69.0
Asset Retirement Obligations	\$0.0	\$0.0	\$0.0	\$0.0	\$4.0
<b>Total</b>	<b>\$509.6</b>	<b>\$516.7</b>	<b>\$520.1</b>	<b>\$526.4</b>	<b>\$531.4</b>

95. Anadarko was required to assess whether these unproved property-related<sup>157</sup> assets were also impaired.<sup>158</sup> Given that by December 31, 2015, there was substantial doubt that the Shenandoah basin project would be economically viable, a probable economic benefit relating to Shenandoah did not exist to support the continued capitalization of related project exploration costs.
96. Specifically, the term “substantial doubt” is described in GAAP to exist when a condition becomes “probable” or is “likely” to occur.<sup>159</sup> In the parlance of GAAP, Condition 3 reflects an understanding that the Shenandoah basin project was not likely to be economically viable and therefore, the economic viability of Shenandoah basin project was remote.<sup>160</sup>
97. Given Condition 3, it is therefore unlikely that any additional exploratory efforts and costs undertaken by Anadarko would cause the Shenandoah basin project to become economically viable. Indeed, while Anadarko incurred additional exploratory costs

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<sup>157</sup> Unproved properties are properties with no proved reserves. ASC Master Glossary.

<sup>158</sup> ASC-932-360-35-11.

<sup>159</sup> ASC Master Glossary (emphasis added) (“**Substantial doubt** about an entity’s ability to continue as a going concern **exists when conditions and events, considered in the aggregate, indicate that it is probable** that the entity will be unable to meet its obligations as they become due within one year after the date that the financial statements are issued (or within one year after the date that the financial statements are available to be issued when applicable). The term probable is used consistently with its use in Topic 450 on contingencies. ... Probable [meaning] [t]he future event or events are likely to occur.”).

<sup>160</sup> GAAP establishes three measures of probability under ASC Topic 450: (1) probable, (2) reasonably possible, and (3) remote. As defined above, probable is generally defined as “likely to occur.” Reasonably possible reflects a likelihood that is “more than remote but is less than likely.” Remote is generally defined to mean a “slight” likelihood of occurrence. ASC Master Glossary. Consistent with the characterization above, Anadarko disclosed that the Shenandoah wells were expensed during 2017 “as it was no longer reasonably possible that the wellbore could be used in the development of the project.” Anadarko 2017 Form 10-K, p. 109.

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subsequent to December 31, 2015,<sup>161</sup> the related activities did not alter management's ultimate conclusion during the financial reporting period ended March 31, 2017, that its Shenandoah-related capitalized costs, including its NPLH assets, were fully impaired. Accordingly, pursuant to a determination that the Shenandoah basin project was not likely to be economically viable by December 31, 2015, GAAP required that Anadarko impair and expense other Shenandoah-related capitalized costs, including its NPLH assets.

98. As discussed above, the Company's accounting treatment during Q1 2017 is consistent with this conclusion. Specifically, given the determination that the Shenandoah project was "economically challenged" and the "prevailing viewpoint [wa]s that there [wa]s little commercial or subsurface value to be gained through continued bi-annual appraisal drilling operations at Shenandoah, currently required for lease maintenance operations,"<sup>162</sup> Anadarko fully expensed all Shenandoah's related assets as impaired under GAAP.<sup>163</sup>
  
99. Anadarko's external auditors similarly noted the following in connection with the Company's Q1 2017 write off of \$902 million in Shenandoah-related suspended well costs, NPLH assets and capitalized interest:<sup>164</sup>

[T]he entire [suspended well cost] balance of the Shenandoah prospect was written off to dry hole in Q1 2017 as **the play was determined to be uneconomical and the Company's partners elected to not continue with exploration and development.** ...<sup>165</sup>

\* \* \*

**[T]he Company and its partners lacked the management commitment to continue the exploration in the overall Shenandoah**

<sup>161</sup> Evidence reflects that leases pertaining to the Shenandoah basin project would expire upon Anadarko's failure to undertake drilling activities within specified time parameters. *See, e.g.*, Deposition of Deposition of Lea Frye, 34:9-21 and 215:17-216:13; Deposition of Patrick McGrievy, 122:7-126:20; Email from Pat McGrievy dated 4/2/2014, APC-00004967 at 4967.

<sup>162</sup> Shenandoah Exploration and Development Teams Memo to Executive Committee Re: Recommendation to Proceed with Issuance of SOP at Shenandoah dated April 24, 2017, APC-01283759.

<sup>163</sup> *See, e.g.*, Anadarko Q1 2017 Form 10-Q, p. 13.

<sup>164</sup> GG.41 3-31-2017 DRY HOLE EXPENSE MEMO, KPMG\_AP\_C\_eA\_0008471; Q1.GG.33.A Q1 3-31-2017 NPLH IMPAIR MEMO, KPMG\_AP\_C\_eA\_0008461.

<sup>165</sup> GG.4.A.8.05 12-31-2017 SUSPENDED WELLS MEMO, KPMG\_AP\_C\_eA\_0009163 at 9185 (emphasis added). *See also* GG.41 3-31-2017 DRY HOLE EXPENSE MEMO, KPMG\_AP\_C\_eA\_0008471.

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**area. Given these considerations, KPMG notes it is not unreasonable or inappropriate for the entire balance of the leases above to be expensed through NPLH impairment.<sup>166</sup>**

100. Indeed, Ms. Green testified that the Company's lack of commitment to continue exploring the Shenandoah area referenced by KPMG above directly resulted from the "substantial doubts" about the economic viability of Shenandoah:

Q. And management was not committed because it had substantial doubts about the economic viability of Shenandoah; correct?

THE WITNESS: At March 31st, 2017, yes.<sup>167</sup>

**3. *Information Available is Consistent with The Understanding That There Was Substantial Doubt that the Shenandoah Basin Project (as a whole) Would Be Economically Viable***

101. While the opinions expressed in this report are based on the above noted conditions described above in paragraph 2, including Condition 3, I have reviewed the following information that is consistent with the conclusion that by December 31, 2015, there was substantial doubt that the Shenandoah basin project (as a whole) would be economically viable:

- a. As early as October 2014, Anadarko's partner, ConocoPhillips communicated to Lea Frye, Anadarko's Senior Staff Reservoir Engineer for the Company's operations in the Eastern Gulf of Mexico, that Conoco had basically cut its estimated oil volumes in half following additional interpretations of the Shenandoah basin.<sup>168</sup> As a result, Conoco further noted that it was "very concerned" about the size and commerciality of the Shenandoah project.<sup>169</sup>
- b. Darrell Hollek, Anadarko's Senior Vice President of Deepwater Operations in the Gulf of Mexico, testified that a general guideline and hurdle utilized for consideration of

<sup>166</sup> Q1.GG.33.A Q1 3-31-2017 NPLH IMPAIR MEMO, KPMG\_APc\_eA\_0008461 at 8462 (emphasis added).

<sup>167</sup> Deposition of Catherine Green, 146:24-147:8.

<sup>168</sup> Exhibit 259, Email from Lea Frye dated October 2, 2014, APC-00013459 at 3459.

<sup>169</sup> Exhibit 259, Email from Lea Frye dated October 2, 2014, APC-00013459 at 3459.

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whether to transition an exploratory project like Shenandoah to commercial development was a PIR10 factor of .30.<sup>170</sup> The following evidence reflects a PIR 10 factor less than .30:

1. In March 2015, Ms. Frye, developed and circulated an economic analysis for the Shenandoah project reflecting PIR10 measures below .30 and in several instances, negative amounts.<sup>171</sup> Only assuming a 10% probability (“P10”) and an \$85 price per barrel of crude oil, did the PIR10 measure exceed .30.<sup>172</sup> Notably, during March 2015, the closing price of crude oil ranged from \$43.46 to \$51.53, well below the \$85 price per barrel supporting a PIR10 above .30.<sup>173</sup> In that same chart, the PIR10 measure at \$60 per barrel was .13 while a 50% PIR was -01.
  
2. In a January 2016 email, Pat McGrievy circulated recommended economics associated with the Shenandoah basin project.<sup>174</sup> As conveyed in both the email and the attached economic summary slides, Mr. McGrievy identified and recommended a “risked PIR of .22,” well below the .30 threshold above at \$60 per barrel:<sup>175</sup>

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<sup>170</sup> Deposition of Darrell Hollek, 53:6-54:4 (“There’s a reference here to what commercial development would require to generate to generate a ‘PIR 10=0.30.’ Do you see that? A. Yeah. Q. And was a PIR 10 of .30 generally a threshold for Anadarko to consider a prospect commercial? A. I don’t remember exactly, that -- but that may have been a minimum threshold. Q. And would that have been set forth in any policies? A. I wouldn’t say a policy; maybe a general guideline. Q. Do you recall what the document was called? A. No, I don’t. Q. But in practice, you recall that .3 was generally considered the threshold? A. I believe that was sort of a hurdle rate. THE COURT REPORTER: A what rate; hurdle rate? THE WITNESS: Yes. Basically an economic threshold to be even considered.”)

<sup>171</sup> Exhibit 300, Email from Lea Frye dated March 23, 2015, APC-00025532-5533.

<sup>172</sup> Exhibit 300, Email from Lea Frye dated March 23, 2015, APC-00025532-5533.

<sup>173</sup> <https://finance.yahoo.com/quote/CL%3DF/history?period1=1419984000&period2=1514678400&interval=1d&filter=history&frequency=1d&includeAdjustedClose=true>.

<sup>174</sup> Exhibit 269, Email from Pat McGrievy dated January 19, 2016, APC-00060382-0383.

<sup>175</sup> Exhibit 269, Email from Pat McGrievy dated January 19, 2016, APC-00060382-0383.

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Case Description		Invest \$60/bbl	
		Net AT NPV10 (\$MM)	AT PIR10
Zero Contingency	Risked Mean	237	0.28
	Unrisked Mean	283	0.30
Facility Only Contingency	Risked Mean	182	0.19
	Unrisked Mean	221	0.21
Recommended Contingency	Risked Mean	174	0.18
	Unrisked Mean	212	0.20
Recommended Contingency (20K Well Rates)	Risked Mean	191	0.20
	Unrisked Mean	232	0.22
Recommended Contingency (20K Well Rates Optimized)	Risked Mean	208	0.22
	Unrisked Mean	250	0.24

3. Notably, while the above analysis assumed a \$60 price per barrel (bbl) of crude oil, the actual price of crude oil at the end of 2015 averaged less than \$40/bbl.<sup>176</sup> Indeed the average price of crude oil would not equal or exceed \$60/bbl until late December 2017.<sup>177</sup>

c. By December 2016, prior to the Q1 2017 write-off of Shenandoah related assets, Anadarko's Controller, Chris Champion appeared to have communicated that such a write down of Shenandoah assets was "imminent."<sup>178</sup> Consistent with this amount, the Company's disclosed 12%-14% annual oil growth rate for the five future years ended 2020, assumed that no investment in Shenandoah would be made.<sup>179</sup>

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<sup>176</sup> <https://finance.yahoo.com/quote/CL%3DF/history?period1=1419984000&period2=1514678400&interval=1d&filter=history&frequency=1d&includeAdjustedClose=true>.

<sup>177</sup> <https://finance.yahoo.com/quote/CL%3DF/history?period1=1419984000&period2=1514678400&interval=1d&filter=history&frequency=1d&includeAdjustedClose=true>.

<sup>178</sup> Email from Pat McGrievy dated March 31, 2017, APC-00307805. *See also* Deposition of Patrick McGrievy, 271:13-272:2 (emphasis added) ("Q. Could you -- could you read the next sentence, please? A. 'I understand, talking with Luis, that Chris Champion did set the stage with some of the executive team in 2016' -- 'December, 2016 to let them know that a fairly substantial write-down at Shenandoah would be imminent in 2017.' Q. So to the best of your understanding, the executive team was apprised as of the end of 2016, that there would be a write-off or a write-down at Shenandoah in 2017? A. That's what Chris Champion told me. Q. Do you have any reason to doubt that was true? A. No, I really don't.").

<sup>179</sup> Anadarko Form 8-K, January 31, 2017; Email from Darrell Hollek dated December 15, 2016, APC-00290058.

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**E. ANADARKO REPEATEDLY FAILED TO EXPENSE AND PROPERLY DISCLOSE SHENANDOAH-RELATED SUSPENDED WELL COSTS, LEASEHOLD COSTS AND OTHER CAPITALIZED COSTS DURING EACH OF THE RESPECTIVE ANNUAL AND QUARTERLY FINANCIAL REPORTING PERIODS ENDED BETWEEN DECEMBER 31, 2015 AND 2016 IN VIOLATION OF GAAP AND SEC ACCOUNTING-RELATED REPORTING RULES**

102. Given that by December 31, 2015, there was substantial doubt that the Shenandoah project would be economically viable (*i.e.*, Condition 3), Anadarko's continued capitalization of Shenandoah-related assets beginning as of December 31, 2015 through the financial reporting period ended December 31, 2016, violated GAAP. Specifically, from the financial reporting periods between December 31, 2015 and December 31, 2016, Anadarko improperly reported between \$769.8 million and \$786.6 million of Shenandoah related assets within its balance sheet.<sup>180</sup> These assets included each of the above noted amounts:<sup>181</sup>

\$ in millions	12/31/15	3/31/16	6/30/16	9/30/16	12/31/16
Non-Producing Leasehold Asset	\$462.7	\$462.7	\$458.4	\$458.4	\$458.4
Suspended Well Costs	\$260.2	\$261.5	\$259.8	\$252.6	\$255.2
Capitalized Interest	\$46.9	\$54.0	\$61.7	\$68.0	\$69.0
Asset Retirement Obligations	\$0.0	\$0.0	\$0.0	\$0.0	\$4.0
<b>Total</b>	<b>\$769.8</b>	<b>\$778.2</b>	<b>\$779.9</b>	<b>\$779.0</b>	<b>\$786.6</b>

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<sup>180</sup> 2016.12.31 GG.4.A.8.10 SW AGING AND NET CHANGE, KPMG\_APc\_0008143; 2016.09.30 Q3.GG.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0007376; 2016.06.30 Q2.GG.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0007189; 2016.01.19 GG.4.A.8.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0006098; 2016.12.31 GG.4.B.1.10 NPLH ROLLFORWARD, KPMG\_APc\_eA\_0007983; 2016.03.31 Q1.GG.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0007094; 2014.12.31 GG.4.B.1.10 Q4 NPLH ROLLFORWARD, KPMG\_APc\_eA\_0002543; 2014.12.31 GG.4.A.8.10 SW AGING, KPMG\_APc\_eA\_0002531.

<sup>181</sup> 2016.12.31 GG.4.A.8.10 SW AGING AND NET CHANGE, KPMG\_APc\_0008143; 2016.09.30 Q3.GG.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0007376; 2016.06.30 Q2.GG.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0007189; 2016.01.19 GG.4.A.8.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0006098; 2016.12.31 GG.4.B.1.10 NPLH ROLLFORWARD, KPMG\_APc\_eA\_0007983; 2016.03.31 Q1.GG.10 SW AGING AND NET CHANGE, KPMG\_APc\_eA\_0007094; 2014.12.31 GG.4.B.1.10 Q4 NPLH ROLLFORWARD, KPMG\_APc\_eA\_0002543; 2014.12.31 GG.4.A.8.10 SW AGING, KPMG\_APc\_eA\_0002531.

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103. As discussed hereafter, Anadarko's related overstatement of Shenandoah's related assets beginning December 31, 2015 and corresponding disclosure omissions were material to the Company's respective financial statements filed on Forms 10-K and 10-Q.

**1. *Anadarko's Overstatement of Shenandoah's Suspended Well Costs and Non-Producing Leasehold Assets and Other Related Assets and Corresponding Disclosure Omissions Beginning December 31, 2015 Were Material***

104. The Company's related misstatement and disclosure omissions were material to each of Anadarko's respective financial reporting periods beginning December 31, 2015 and ended December 31, 2016. In this regard, Anadarko's recurring misstatement exceeded well-established SEC quantitative materiality example benchmarks (*i.e.*, 5% of an item).
105. For example, Anadarko's misstatement exceeded 5% of the following relevant disclosed amounts (*i.e.*, Revenue, Oil and condensate sales, Operating income (loss), and Income (loss) before taxes) using both the rollover approach (*e.g.*, FY 2015), and the iron curtain approach (*e.g.*, Q1 2016 through FY 2016):<sup>182</sup>

Percentage Impact of Misstatements on Various Financial Metrics						
	FY 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	FY 2016
Total Revenue and Other	9%	46%	41%	41%	33%	10%
Oil and condensate sales	14%	92%	69%	63%	54%	17%
Operating Income (Loss)	9%	90%	235%	98%	129%	30%
Income (Loss) Before Taxes	8%	56%	84%	77%	152%	21%

<sup>182</sup> **Note:** Pursuant to required use of the iron curtain and rollover methods, these calculations evaluate Anadarko's ongoing failure to expense Shenandoah-related suspended well costs and unproved property costs, including the unrelated misstatement across the various periods presented. Note that as Shen-3 well costs were not expensed until Q3 2016, the misstatement percentages included such costs during FY2015 through Q2 2016. These percentages were calculated using Offshore Exposure - Dec 2014\_Final\_Suspended & Drilling, APC-00156333; 2015.04.20 Q1.GG.10SW AGING AND NET CHANGES - 04.20, KPMG\_AP\_C\_0021079; 2015.07.14 Q2.GG.10 SW AGING, KPMG\_AP\_C\_0009967; 2015.10.14 Q3.GG.10 SW AGING AND NET CHANGE, KPMG\_AP\_C\_eA\_0003445; 2016.01.19 GG.4.A.8.10 SW AGING AND NET CHANGE, KPMG\_AP\_C\_eA\_0006098; 2016.03.31 Q1.GG.10 SW AGING AND NET CHANGE, KPMG\_AP\_C\_eA\_0007094; 2016.06.30 Q2.GG.10 SW AGING AND NET CHANGE, KPMG\_AP\_C\_eA\_0007189; September 30, 2016 Dry Hole Expense, KPMG\_AP\_C\_eA\_0008256 and reported financial statement amounts included in Anadarko's 2014 Form 10-K; Current Report on Form 8-K filed February 2, 2015, Q1 2015 Form 10-Q; Q2 2015 Form 10-Q; Q3 2015 Form 10-Q; 2015 Form 10-K; Current Report on Form 8-K filed February 1, 2016; Q1 2016 Form 10-Q; Q2 2016 Form 10-Q; Q3 2016 Form 10-Q.

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106. As noted above, while the assessment of quantitative factors is necessary and provides a preliminary basis for establishing the materiality of Anadarko's misstatements and disclosure omissions, the consideration of qualitative factors further supports my opinion that the Company's Shenandoah-related misstatements were material. Moreover, qualitative factors do not override the conclusion that Anadarko's misstatements were material quantitatively, and thus material for financial reporting purposes.<sup>183</sup>

107. For example, the misstatement concerned a portion of Anadarko's business (its oil exploration and development segments) that had a significant role in the Company's current and future operations or profitability. As discussed above beginning in paragraph 80, Anadarko repeatedly asserted the potential significance of the Shenandoah project on the Company's future operations and profitability. Prior to the end of Q1 2017, Anadarko continued to assert the success of certain wells and the implicit possibility of future economic benefit of its Shenandoah-related investments. The relevance of these statements to the Company's future operations and profitability further supports the materiality of Anadarko's misstatement and related disclosure omissions.
108. Specifically, in addition to the disclosures through December 31, 2014 described above and after December 31, 2015, in contrast to Condition 3, Anadarko continued to emphasize the significance of Shenandoah in the Company's earnings releases and other disclosures. For example:

- a. On February 2, 2016, Mr. Daniels asserted Anadarko's contentment with the results of Shenandoah-4 and the "high expectations" the Company had for Shenandoah-5:

**We're very pleased with it.** We also were able to get about 550 feet of core. That's important for planning what that development could look like. So that's going to be analyzed, turned over to the reservoir engineers as they put together a scenario for how we might develop that.

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<sup>183</sup> I have considered relevant qualitative factors, including those specifically listed in ASC 250-10-S99 that are described as "considerations that may well render material a quantitatively small misstatement of a financial statement item" when making this determination.

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At the same time, we're looking at **drilling Shenandoah 5. ... We have high expectations for it**, but we need to drill the well and see. That's what appraisal is all about.

Meanwhile, the guys are taking all the information that we obtained from this, rolling it into conceptual planning as to what resources we may be able to recover, how much it might cost, those types of things. As Al said, we're a long ways from sanction at this point. **If Shenandoah-5 is successful, we may move even farther to the east with a Shenandoah-6, but of course that will be all dependent on what happens at Shenandoah-5.**<sup>184</sup>

- b. Two weeks later, Mr. Daniels reiterated the Company's prior successful wells and the advancement being made on the Shenandoah project by Anadarko, asserting:

On Shenandoah, I don't think that we have a price deck right now that says it would be economic at this because right now, you're still in cost deflation, whether it's on drilling rigs, whether it's on construction cost and your services. ... We're planning on appraising it this year, the Shenandoah #5 well will be drilled and that will be off to the east, again, trying to prove lateral extent, that kind of thing. **We did appraise it last year. We had successful wells, 620 feet of pay in that. So we still are advancing the project, but we're a ways away from a sanction at Shenandoah.**<sup>185</sup>

- c. On May 11, 2016 Mr. Leyendecker EVP of Exploration affirmed that Anadarko was continuing to praise the Company's "**fantastic Shenandoah discovery.**"<sup>186</sup>
- d. On May 24, 2016 Shandell Szabo, Anadarko's former Onshore Exploration Manager and Director of Investor Relations, characterized Shenandoah as "the finest lower-tertiary discovery to date in the Gulf of Mexico" and commented on its potential:

I think when you look at Shenandoah, **it goes without saying that it is the finest lower-tertiary discovery to date in the Gulf of Mexico.** And I say that because of a few reasons. When you're looking at these resource, potentially, you look at a couple of things: One, you look at thickness; two, you look at area; and then three, recovery factor.

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<sup>184</sup> Q4 2015 Earnings Call, February 2, 2016, p. 9 (emphasis added).

<sup>185</sup> Anadarko Conference Presentation, February 24, 2016, p. 8 (emphasis added).

<sup>186</sup> Anadarko Conference Presentation, May 11, 2016, p. 7 (emphasis added).

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And when you look at this log, and you can see that hundred foot scale bar on there. That's 1,000 feet of sand full of hydrocarbons. So that's one. It's extremely thick.

Two, when you look at the scale across those blacks, and you can see the northern part there, this spans 9 miles. Those are 3-mile blocks. So you're talking about something that has a lot of area, which is really the biggest driving factor when you talk about size.

And then the last thing is the recovery of this. And so this particular discovery has Miocene-like properties, which means that the reservoir quality is very good. You're looking at [indiscernible] up to 25% here. You're looking at permeabilities in the 100 millidarcy range. Some of the individual sand sees 300, 400 millidarcy perm.

And then the last thing you look at is the fluid properties. It's very light oil out here.

**So from the overall discovery, it's got everything that you're looking for.** We just -- as Bob mentioned, we just finished -- we're just about to finish up the #5 well, so we can't reveal exactly what's going on there. But what I would say is that it looks a whole heck of a lot like the log that you're looking at right here. And when you look at where that falls on that cross section, you can see the #5 well up there on that cross section. So you can see that lighter green color, we're going to be able to turn that dark green. So the lighter green on there is the probable and the darker green is the proven. **And so we're going to have the ability for that large area over there to go ahead and say, "Yes, that's proven."** That's tremendous for us.<sup>187</sup>

- e. On June 28, 2016, Anadarko's President Robert Gwin, affirmed the Company's excitement following Shenandoah-5, including Anadarko's resulting "enthusiasm" for Shenandoah as a "tremendous resource potential:"

[W]e're very excited to be working toward completing the Shenandoah #5 well. Some of you may have heard some comments we've made in the past there. I don't have the log here, the #2 appraisal well, which had over 1,000 feet of net pay that we announced I think it was now a couple of years ago. **But Shenandoah-5, at least in the uphole sections, we talked about the fact that it looked a lot like Shenandoah-2. A lot of enthusiasm around our activities here because of Shen-5.** The results of Shen-5 have put us in a position where we clearly expect to drill Shen-6 later this year and

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<sup>187</sup> Anadarko Conference Presentation, May 24, 2016, p. 9 (emphasis added).

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continue with an appraisal program there ... **Something like a Shenandoah is obviously tremendous resource potential, but the development plan could be from a relatively smaller spar opportunity to maybe multiple spars to something bigger that you might pursue.**<sup>188</sup>

- f. On September 14, 2016, Mr. Gwin reiterated his excitement and referred to Shenandoah as a “great opportunity” for the company:

The real advantages is the infrastructure and capacity of that infrastructure. And so a lot of people focus on, well, when are we going to see greenfield development and at what price, et cetera, and **we still got a great opportunity at the Shenandoah we're excited about**. And so we ask ourselves those questions all the time, right? We're working at answering it. **But you don't need material commodity price improvement to make money in the Gulf of Mexico**. We're doing it at strip and we think we can continue to do it at strip for a long time to come.<sup>189</sup>

- 109. The write-off of Anadarko’s Shenandoah suspended costs described in paragraph 102 above would have also had a pervasive impact on other aspects of Anadarko’s disclosures within its Annual and Quarterly Reports on Forms 10-K and 10-Q, during the periods between December 31, 2015 and December 31, 2016. These additional disclosures are seen in Anadarko’s Management’s Discussion and Analysis of Financial Condition and Results of Operations (“MD&A”) as called for under Item 303 of Regulation S-K<sup>190</sup> in its Q1 2017

<sup>188</sup> Anadarko Conference Presentation, June 28, 2016, p. 9 (emphasis added).

<sup>189</sup> Anadarko Conference Presentation, September 14, 2016, p. 9 (emphasis added).

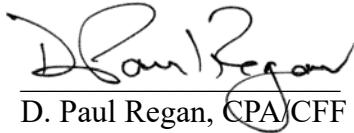
<sup>190</sup> Item 303 of Regulation S-K (Item 303) requires public companies to include a discussion of the results of operations, liquidity, and other information necessary to an understanding of the registrant’s financial condition. This discussion is presented in a single section referred to as Management’s Discussion and Analysis of Financial Condition and Results of Operations (MD&A). The MD&A section is expected to provide “material historical and prospective textual disclosure enabling investors and other users to assess the financial condition and results of operations of the registrant. SEC Release No. 33-6835. Amongst other disclosures, the SEC’s Regulation S-K Item 303 required the following accounting-related MD&A disclosures for annual period: (1) Item 303(a): The discussion shall provide information as specified in paragraphs (a)(1) through (5) of this Item and also shall provide such other information that the registrant believes to be necessary to an understanding of its financial condition, changes in financial condition and results of operations... Where in the registrant’s judgment a discussion of segment information and/or of other subdivisions (e.g., geographic areas) of the registrant’s business would be appropriate to an understanding of such business, the discussion shall focus on each relevant, reportable segment and/or other subdivision of the business and on the registrant as a whole.” and (2) Item 303(a)(3)(i): “Describe any unusual or infrequent events or transactions or any significant economic changes that materially affected the amount of reported income from continuing operations and, in each case, indicate the extent

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Quarterly Report on Form 10-Q and its 2017 Annual Report on Form 10-K. In those Forms filed with the SEC, Anadarko's management explained the significant increases in the Company's dry hole expense and impairment of unproved properties.<sup>191</sup> As a result of the misstatements at issue, similar Shenandoah-specific disclosures should have been presented in Anadarko's MD&A's included in the Company's respective Forms 10-K and 10-Q filed for those financial reporting periods between December 31, 2015 and December 31, 2016. However, as the suspended costs were not properly expensed as discussed above, these disclosures required under Item 303 of Regulation S-K were improperly omitted from the Company's respective annual and quarterly reports.

110. Given the quantitative significance of the misstatements described above, as further supported by the indicated significance of the Shenandoah basin project as made evident by the Company's aforementioned statements and disclosures, Anadarko's failure to impair and expense related project costs as of and between December 31, 2015 and December 31, 2016, was material.

Respectfully submitted November 9, 2022,



D. Paul Regan, CPA/CFF

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to which income was so affected. In addition, describe any other significant components of revenues or expenses that, in the registrant's judgment, should be described in order to understand the registrant's results of operations." Item 303(c) requires similar disclosures for interim (quarterly) periods. *See also* SEC Release No. 33-8350, SEC Financial Reporting Manual §9220.

<sup>191</sup> Anadarko 2017 Form 10-K, pp. 66-67; Anadarko Q1 2017 Form 10-Q, p. 37.

**Exhibit A - Documents and Other Information Considered in Forming Opinions**  
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I have relied on all of the documents cited in my report, including the text and footnotes therein. In addition to these documents, I have also listed below other documents that I considered in preparing my report.

**Relativity Documents**

As part of my assignment, I was given access to electronic databases (i.e. Relativity Platform) containing relevant information including documents produced by defendants and third-parties.

**Bates Stamped Documents (beginning bates only):**

ANACOP00000354

ANACOP00025913

APC-00001289

APC-00001791

APC-00001795

APC-00001801

APC-00001803

APC-00001829

APC-00001863

APC-00001866

APC-00001867

APC-00001928

APC-00002563

APC-00002814

APC-00003195

APC-00004967

APC-00005093

APC-00005094

APC-00005095

APC-00009644

APC-00013459

APC-00025532

APC-00060382

APC-00147963

APC-00152617

APC-00156333

APC-00158152

APC-00290058

APC-00307805

APC-00572955

APC-00617381

APC-00617383

APC-00863988

**Exhibit A - Documents and Other Information Considered in Forming Opinions**  
**Confidential**

APC-01283759  
APC-01396003  
APC-01396065  
APC-01699536  
APC-01699656  
APC-01720564  
APC-01737346  
APC-01751288  
KPMG\_APC\_0008143  
KPMG\_APC\_0009967  
KPMG\_APC\_0021079  
KPMG\_APC\_0027263  
KPMG\_APC\_eA\_0002511  
KPMG\_APC\_eA\_0002531  
KPMG\_APC\_eA\_0002543  
KPMG\_APC\_eA\_0003043  
KPMG\_APC\_eA\_0003262  
KPMG\_APC\_eA\_0003349  
KPMG\_APC\_eA\_0003445  
KPMG\_APC\_eA\_0003451  
KPMG\_APC\_eA\_0006079  
KPMG\_APC\_eA\_0006098  
KPMG\_APC\_eA\_0007094  
KPMG\_APC\_eA\_0007100  
KPMG\_APC\_eA\_0007189  
KPMG\_APC\_eA\_0007376  
KPMG\_APC\_eA\_0007469  
KPMG\_APC\_eA\_0007566  
KPMG\_APC\_eA\_0007983  
KPMG\_APC\_eA\_0008256  
KPMG\_APC\_eA\_0008355  
KPMG\_APC\_eA\_0008461  
KPMG\_APC\_eA\_0008471  
KPMG\_APC\_eA\_0009163

**SEC Filings**

Anadarko 2007-2017 Annual Reports on Form 10-K and Exhibits  
Anadarko Current Report on Form 8-K dated January 31, 2017  
Anadarko Current Report on Form 8-K dated February 1, 2016  
Anadarko Current Report on Form 8-K, February 2, 2015  
Anadarko Proxy Statement on Form Def 14A, March 18, 2016  
Anadarko Proxy Statement on Form Def 14A, March 23, 2015

**Exhibit A - Documents and Other Information Considered in Forming Opinions**  
**Confidential**

Anadarko Q1 2012 - Q3 2017 Quarterly Reports on Form 10-Q and Exhibits

Cobalt 2014 Annual Report on Form 10-K

Conoco 2014 Annual Report on Form 10-K

Marathon 2014 Annual Report on Form 10-K

**Anadarko Transcripts & Presentations**

2014 Anadarko Investor Conference Presentation, March 4, 2014

2015 Anadarko Investor Conference Call Presentation, March 3, 2015

Anadarko Conference Presentation, February 24, 2016

Anadarko Conference Presentation, June 28, 2016

Anadarko Conference Presentation, May 11, 2016

Anadarko Conference Presentation, May 24, 2016

Anadarko Conference Presentation, September 14, 2016

Company Conference Presentation, May 20, 2014

Company Conference Presentation, May 22, 2013

Company Conference Presentation, November 13, 2014

Company Conference Presentation, November 22, 2013

Company Conference Presentation, September 12, 2013

Earnings Guidance Update Call, March 3, 2015

Q1 2013 Earnings Call, May 7, 2013

Q1 2014 Earnings Call, May 6, 2014

Q2 2013 Earnings Call, July 30, 2013

Q3 2014 Earnings Call, October 29, 2014

Q4 2013 Earnings Call, February 4, 2014

Q4 2015 Earnings Call, February 2, 2016

Q4 and Full Year 2014 Earnings Call, February 3, 2015

Shareholder/Analyst Call, February 20, 2013

**Accounting and Auditing Guidance, SEC Rules and Related**

17 CFR § 210.12b-2

17 CFR § 210.12b-20

17 CFR § 210.4-01

AICPA Audit and Accounting Guide, Entities with Oil and Gas Producing Activities – Clarified (Updated As of January 1, 2014)

AICPA Statement on Standards for Forensic Services

ASC Master Glossary

ASC Topic 105 - Generally Accepted Accounting Principles

ASC Topic 250 - Accounting Changes and Error Corrections

ASC Topic 360 - Property, Plant, and Equipment

ASC Topic 450 - Contingencies

ASC Topic 932 - Extracting Activities - Oil and Gas

Deloitte Oil and Gas, Accounting, Financial Reporting, and Tax Update, January 2016

**Exhibit A - Documents and Other Information Considered in Forming Opinions**  
**Confidential**

FASB Accounting Concept Statement No. 6

FASB Accounting Standards Codification (ASC) Topic 105

FASB FAS No. 25, Suspension of Certain Accounting Requirements for Oil and Gas Producing Companies - An Amendment of FASB Statement No. 19

FASB Staff Position, FAS 19-1: Accounting for Suspended Well Costs

FASB Statement of Financial Accounting Standards (FAS) No. 19, Financial Accounting and Reporting by Oil and Gas Producing Companies

Federal Trade Commission, Informal Staff Advisory Opinion 02-4

PCAOB AS 1001, Responsibilities and Functions of the Independent Auditor

PCAOB AS 1015, Due Professional Care in the Performance of Work

PCAOB AU 110, Responsibilities and Functions of the Independent Auditor

PCAOB AU 411, The Meaning of Present Fairly in Conformity With Generally Accepted Accounting

SEC Regulation S-K, Item 303

SEC Financial Reporting Manual, updated as of August 25, 2015, Topic 9 - Management's Discussion and Analysis of Financial Position and Results of Operations (MD&A), 9200 General requirements

SEC Release No. 33-8350

SEC Release No. 33-6835

SEC Securities Act Release No. 6349

SEC Staff Accounting Bulletin No. 108

SEC Staff Accounting Bulletin No. 99

Todd E. Hardiman, Associate Chief Accountant, SEC Division of Corporation Finance, "Remarks before the 2007 AICPA National Conference on Current SEC and PCAOB Developments," December 11, 2007

**Deposition(s) and Exhibits**

Deposition of Catherine Green and Exhibits

Deposition of Darrell Hollek and Exhibits

Deposition of Ernest Leyendecker and Exhibits

Deposition of Lea Frye and Exhibits

Deposition of Patrick McGrievy and Exhibits

Deposition of Paul Chandler and Exhibits

Deposition of R.A. Walker and Exhibits

Deposition of Robert Gwin and Exhibits

**Miscellaneous Documents (Articles, other written works, etc.)**

Amended Complaint, No. 4:20-cv-00576 (S.D. Tx.).

Stipulation Concerning Expert Discovery, September 27, 2022

<https://finance.yahoo.com/quote/CL%3DF>

<https://www.sec.gov/about/what-we-do#section1> (accessed November 7, 2022)



## D. PAUL REGAN, CPA/CFF

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### Employment & Education

2012 – Present	Hemming Morse, LLP Certified Public Accountants, Forensic and Financial Consultants Chairperson, 2012-2016 Partner, since 2012
1975 – 2011	Hemming Morse, LLP Certified Public Accountants, Forensic and Financial Consultants Chairman of the Board, 2001-2011 President, 2001-2009 Director-in-charge of the firm's Litigation and Forensic Consulting Practice, 1975-2006
2006	Stanford Law School Executive Education - Directors' College
1979	Golden Gate University, San Francisco M.S. Accounting
1973 – 1975	Regan & Skelton, CPAs Partner
1970 – 2018	Taught or attended at least 80 hours of qualified continuing education courses in each 2 year period in order to renew CPA license
1968 – 1973	Peat, Marwick, Mitchell & Co., CPAs
1968	University of San Francisco B.S. Accounting (Accounting Specialist)



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## D. PAUL REGAN, CPA/CFF

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### Professional & Service Affiliations

- Certified Public Accountant, State of California
  - Since 1970
- American Institute of Certified Public Accountants
  - Since 1970
  - Council Member, 2003-2011
  - Member, Forensic & Valuation Services Executive Committee, 2008-2011
  - Member, Litigation and Dispute Resolution Services Subcommittee, 1998-2001
  - Chair of National Economic Damages Committee, 1999-2001
  - National Computer Audit Subcommittee of the Auditing Standards Board, past member
- California Society of Certified Public Accountants Distinguished Service Award, 2009
- Certified in Financial Forensics
  - Since 2008
- California CPA Education Foundation
  - Board of Trustees, 1997-2003
  - President, 2001-2002
  - First Vice President, 2000-2001
  - Treasurer, 1999-2000
- California Society of Certified Public Accountants, Board of Directors, 2001-2006
  - Council, since 2001
  - Chair, 2004-2005
  - First Vice President, 2003-2004
- California Society of Certified Public Accountants, Litigation Consulting and Dispute Resolution Services Common Interest Member
  - Steering Committee, since 1990
  - Chair, 2002-2004
  - Vice President, 2000-2002
- California Society of Certified Public Accountants, State Economic Damages Section
  - Chair, 1996-1998
  - Member, since 1995
- California Society of Certified Public Accountants, Quality Control Committee, past member
- California Society of Certified Public Accountants, Litigation Services Conference Chair, 1990
- California Society of Certified Public Accountants, Advanced Litigation Forum Planning Committee, 1991-1993; 1995 and 1997
  - Chair, 1993 and 1997
- California Society of Certified Public Accountants, Computer Show and Conference Chair, 1985
- California Society of Certified Public Accountants, Economic Damages Conference Planning Committee, 2000
- American Arbitration Association's National Panel of Arbitrators, 1983-1996



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### Professional & Service Affiliations continued

- Western Association of Accounting Firms Audit and Accounting Committee
  - Chairman, 1980-1982
  - Audit and Accounting Manuals, Editor, 1979-1982
- CPA Computer Report, Editorial Board, 1984-1987
- Board of Trustees, Golden Gate University, 2002-2013
  - Audit Committee member, since 2005
  - Audit Committee Chair, 2005-2008
- Board of Trustees, Jesuit School of Theology at Berkeley, 2002-present
  - Audit Committee member and Chair, 2004-2011
- International Display Works, Inc.,
  - Board of Directors, 2004-2006
  - Audit Committee member, 2005-2006
- Solar Power, Inc.,
  - Board of Directors, 2006-2010
  - Audit Committee Chair, 2006-2010
- Catholic Charities CYO of the Archdiocese of San Francisco
  - Board of Directors, 2009-present
  - Audit Committee Chair, since 2009
- Town of Hillsborough
  - Council Member, 1998-2010
  - Mayor, 2002-2004
  - Vice Mayor, 2000-2002
  - Commissioner of Finance, 1998-2002; 2004-2010
  - Financial Advisory Committee, since 2011
- Hillsborough City School District
  - Board of Trustees
  - Trustee, 1985-1995
  - President, 1986-87; 1993-94
- Hillsborough Recreation Commission, 1989-1993; 1998-2010
  - President, 1990-1993
- Citizen of the Year, 1995  
Town of Hillsborough, California



## D. PAUL REGAN, CPA/CFF

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### Courses Written and Presented

#### AICPA & California Society of CPAs

- "Candid Advice on Expert Witness Best Practices" California Society of CPAs, Fraud and Forensics Virtual Conference, 2022
- "Fraudulent Financial Reporting and Accountants' Malpractice" California Society of CPAs, 4N6: Forensics and Fraud Virtual Conference, 2021
- "Economic Damages: Common Frameworks By Industry & Claim Type" AICPA National Forensic Accounting Conference, Boston, MA, 2010
- "Fraud Prevention and Detection" California Society of CPAs, Business and Industry Conference, Los Angeles and San Francisco, CA, 2004
- "Trigon Insurance Co. v. United States" California Society of CPAs, Economic Damages Litigation Section, San Francisco, CA, 2003
- "Issues Re: Revenue Recognition" California Society of CPAs, Litigation Sections Steering Committee, Burlingame, CA, 2003
- "Trashing Drafts - A Standard Practice or a Dangerous Proposition?" California Society of CPAs, Advanced Business Litigation Institute, Palm Springs, CA, 2003
- "Aggressive Accounting & The Games People Play" AICPA Webcast, co-author, NJ, 2003
- "Mistakes Made in the Work Product" California Society of CPAs, Litigation Services Conference, Irvine, CA, 2002
- "Complex Litigation/Accounting Malpractice" AICPA National Fraud Conference, Las Vegas, NV, 2002
- "Ethics, Taxes and Financial Reporting" California Society of CPAs, San Francisco, CA, 2002
- "Expert Disqualifications" California Society of CPAs, Advanced Economic Damages and Business Valuation Conference, Palm Springs, CA, 2001
- "Financial Statement Fraud" California Society of CPAs, Fraud Conference, San Francisco and Los Angeles, CA, 2000
- "Quantifying Losses" AICPA National Fraud Conference, Las Vegas, NV, 2000
- "Electronic Work Product-Discovery Issues" California Society of CPAs, Economic Damages Conference for Business Trial Lawyers & Experts, Los Angeles, CA, 1999
- "The CPA's Role in Construction Damages" AICPA National Advanced Litigation Conference, Atlanta, GA, 1999
- "Significant Frauds of our Time" AICPA National Fraud Conference, Las Vegas, NV, 1998



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### Courses Written and Presented continued

#### AICPA & California Society of CPAs continued

- "Daubert and the CPA Expert" California Society of CPAs, Advanced Economic Damage Conference, San Francisco, CA, 1998
- "The Accountant in Fraud Investigations" California Society of CPAs, Fraud Conference, San Francisco and Los Angeles, CA, 1997
- "Rule 26 Reports," "The Auditor and Fraud," and "Challenging Questions" California Society of CPAs, Advanced Litigation Forum, Palm Springs, CA, 1996
- "Distinguishing Between Litigation and Attest Engagements" California Society of CPAs, Advanced Litigation Forum, San Diego, CA, 1995
- "Miniscribe Trial Binder" California Society of CPAs, Advanced Litigation Forum, Monterey, CA, 1993; Litigation Consulting Services Committee, Puerto Vallarta, MX, 1993; Litigation Consulting Services Committee, San Francisco, CA, 1994
- "Lost Profits" California Society of CPAs, Litigation Services Conference, San Francisco and Los Angeles, CA, 1991
- "Opportunities Update: A Discussion of Disruption Claims" California Society of CPAs, Litigation Consulting Conference, Los Angeles, CA, 1990
- "Construction Damages" AICPA, Second Annual Conference on CPA's Role in Litigation Services, Dallas, TX and Washington, DC, 1990

#### Selected Others

- "Fraudulent Financial Reporting and Accountant's Malpractice" San Francisco State University, 2019
- "The Fraud Triangle - Where Were the Gatekeepers" United States District Court, Northern District Historical Society, San Francisco, CA, 2012
- "Introduction of Financial Forensic Accounting" Golden Gate University, Adjunct Professor, 2009-present
- "Reporting in Litigation Engagements" "Wage & Hour Litigation" Golden Gate University, 2009
- "Intellectual Property Damages" Federal Bureau of Investigation, Quantico, VA, 2001
- "Alternative Dispute Resolution Techniques and Strategies for the Small and Emerging Contractor" American Bar Association, Fourth Annual Construction Institute, 1995
- "Fundamentals of Forensic Accounting" Georgetown University, Washington, DC, 1994



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### Courses Written and Presented continued

#### Selected Others continued

- "Proving and Pricing Delay and Disruption Claims" Andrews Conference - Fourth Annual Construction Litigation Superconference, San Francisco, CA, 1989
- "The Auditor in Court" State of California, Government Auditors, 1989
- "Pricing Construction Claims" Thelen, Marrin, Johnson & Bridges, 1988
- "Dollars and Sense: Building Your Damages Case & Surviving a Daubert Challenge" San Francisco Trial Lawyers Association, Litigation Practice, San Francisco, CA, 2007
- "Winning Strategies for the Financial Side of Your Damages Case" Construction Infrastructure Summit, Phoenix, AZ, 2007

### Publications

- "Our Roots Run Deep" California CPA Magazine, August 2004
- "Expert Witnesses: Do They Have to Keep Draft Reports?" California CPA Magazine, May 2004
- "Revenue Recognition: Now, Later or Never?" California CPA Magazine, September 2003
- AICPA Litigation Services and Applicable Professional Standards Consulting Services Special Report 03-1 (Contributing author)
- Litigation Services Handbook, "The Role of the Accountant as Expert Witness," published by John Wiley & Sons, Chapter 16, "Litigation Consulting: Construction Claims"
- Litigation Support Report Writing, published by John Wiley & Sons, Chapter 15, "Construction Claims"
- Member of the Editorial Board and author of various articles for the California Society of CPAs' Litigation and Dispute Resolution Services Section's quarterly publication (since summer 1996)
- Outlook Magazine, Winter 1985 - Computer Show and Conference Survey
- "California CPA Computer Show and Conference," CPA Computer Report, September 1985
- "Direct and Cross Examination of Experts," co-author of case study presented by University of California Hastings Litigation Advocacy Program



## D. PAUL REGAN, CPA/CFF

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### Testimony (Presented in the Last Four Years)

#### Trial

- Doug Ridley and Sherry Shen v. Rancho Palma Grande HOA (2022), Superior Court of California, Santa Clara County, Case No. 19CV349909
- Port of Ridgefield vs. Union Pacific Railroad Company (2018) U.S. District Court Western District of Washington at Tacoma, Case No. 3:14-CV-06024-RBL

#### Deposition

- Lehigh Southwest Cement Company v. James Hardie Building Products (2019) (2022), Superior Court of California, Shasta County, Case No. 191110
- Strathclyde Pension Fund, et al. v Bank OZK, et al. (2021) U.S. District Court, Eastern District of Arkansas Case No. 4:18-cv-00793-DPM
- Doug Ridley and Sherry Shen v. Rancho Palma Grande HOA (2022), Superior Court of California, Santa Clara County, Case No. 19CV349909
- In re: Novo Nordisk Securities Litigation (2021) U.S. District Court, District of New Jersey Case No. 3:17-CV-209-BRM-LHG
- Snow Covered Capital, LLC v. William Weidner et al. (2021) United States District Court, District of Nevada Case No.: 2:19-cv-00595—JAD-NJK
- 246 Atherton Avenue LLC v. Trais Fluors LLC (2019) Superior Court of California, San Mateo County Case No. 16-CIV-02957
- Strathclyde Pension Fund, v. Bank OZK and George Gleason (2021), United States District Court, Eastern District of Arkansas, Central Division Case No. 4:18-cv-00793-DPM
- The Regents of the University of California v. Paul S. Aisen, et al. (2019) Superior Court of California, San Diego County, Case No. 37-2015-00022082-CU-BT-CTL
- In re: Teva Securities Litigation (2021) U.S. District Court, District of Connecticut Case No. 3:17-cv-00558 SRU
- Mark Smilovits, et al. v First Solar, Inc., et al. (2019) U.S. District Court District of Arizona Case No. 2:12-cv-00555-DGC
- Robert Pestoni v. Linda Sereni (2018) JAMS, Ref No. 1100090112



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Deposition continued

- Port of Ridgefield vs. Union Pacific Railroad Company (2018) U.S. District Court Western District of Washington at Tacoma, Case No. 3:14-CV-06024-RBL
- Layton Construction Co., Inc. v. Mint Development, L.P. et al. (2018) Superior Court of California County of San Francisco, Case No. CGC-15-549603

Arbitration

- Robert Pestoni v. Linda Sereni (2018)  
JAMS, Ref No. 1100090112

## **Exhibit 20**

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UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION

In re ANADARKO PETROLEUM § Civil Action No. 4:20-cv-00576  
CORPORATION SECURITIES LITIGATION §  
§ CLASS ACTION  
§ The Honorable Charles R. Eskridge III

**EXPERT REPORT OF ROBERT MERRILL, Ph.D.**  
**NOVEMBER 9, 2022**

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**I. NATURE OF THE ENGAGEMENT**

1. I have been engaged by Robbins Geller Rudman & Dowd LLP (“Class Counsel”), through Ammonite Resources Company, to provide expert opinions regarding geoscientific considerations relating to Anadarko Petroleum Corporation’s (“Anadarko” or “Company”) Shenandoah (“Shen”) exploration project during the Class Period of February 20, 2015, through May 2, 2017, inclusive. My report is submitted solely for use in this case.

2. It is my understanding that Plaintiffs in this case allege that, leading up to and during the Class Period, Defendant Anadarko and its former executives R.A. Walker (“Walker”), Robert G. Gwin (“Gwin”), Robert P. Daniels (“Daniels”), and Ernest A. Leyendecker, III (“Leyendecker”) (collectively, “Defendants”) misled the investing public about the commercial viability and producible resource size of the Shen oil prospect in the deepwater Gulf of Mexico (“GOM”).

3. I have been asked by Class Counsel to analyze the scientific and technical data in the record about Shen in order to assist the fact finder in understanding the evidence and opine about the adverse information known to Defendants, leading up to and during the Class Period, about Shen’s commercial viability and producible resource size.

4. I have extensive experience as a geologist and geotechnical expert in oil and gas exploration and production, including experience in the deepwater GOM at both the technical and managerial levels, as detailed below and in Appendix I. During the Class Period, it was industry practice to use an interdisciplinary team of geologists, geophysicists, and petroleum engineers for oil and gas exploration and appraisal. Anadarko followed this practice with respect to the Shen discovery. To simulate industry practice and Anadarko’s specific practice, Class Counsel retained both myself and Lyndon Pittenger, a petroleum engineer, to opine on different aspects of Shen’s appraisal and assessment. Mr. Pittenger and I examined much of the same factual information, as happens in the real world, because such an appraisal requires a collaboration of an interdisciplinary

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team. I have reviewed Mr. Pitterer's work, and our reports contain many cross-references. However, the opinions expressed herein concerning the geoscience of Shen are my own.

5. I have prepared this report to state my opinions, describe the bases for those opinions, disclose the facts and data considered in reaching my opinions, and make other appropriate disclosures. My analyses, opinions, and conclusions are based on my work through the date of this report and informed by my education, knowledge, and 48-years of experience in the oil and gas industry.<sup>1</sup> A listing of materials I considered as of the date of this report is contained in Appendix II, as well as the citations presented in this report. This information is of the type that would ordinarily be relied on by a geologist and geotechnical expert. I reserve the right to prepare illustrative exhibits based on the contents of this report if I am called to testify at trial.

6. I am being compensated for my services at my usual hourly rate of \$450/hour. This compensation is entirely independent of the outcome of the litigation and is not contingent upon my opinions and conclusions in the case.

7. This report is subject to change or modification should additional relevant information become available. I may review, evaluate, and analyze additional data, facts, or information as they become available. I may also seek to respond to opinions or analyses proffered by other experts in this case. I reserve the right to amend or supplement my opinions based upon further information learned, produced, or provided to me; on the instruction of counsel; or as a result of any motion or court order that may alter the nature or scope of the claims and issues in the case or at trial. Therefore, the analyses and opinions described herein may be subject to change based upon additional information that becomes available or other developments that occur.

---

<sup>1</sup> In addition to documents referenced in this report and attached appendices, I relied on my education, background, skills, and experience, including a body of knowledge derived from numerous other sources not specifically identified herein.

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## II. QUALIFICATIONS

8. I have 48 years of oil and gas industry experience in domestic and international exploration and staff positions for various companies, including American Stratigraphic Company, Cities Service Company, Occidental, Unocal, and Samson. I have been involved in the exploration of a variety of onshore and offshore basins worldwide, including extensional basins, fold and thrust belts, and foreland basins, both from a regional context and individual prospect generation. I have experience in exploration and acquisition in GOM and other areas in North America; and internationally, including Australia, Argentina, Brazil, and Colombia in South America; Thailand, Malaysia, and Indonesia in Southeast Asia; Russia, Kazakhstan, and Azerbaijan in Central Asia; the North Sea; and Central Europe.

9. I have experience generating and evaluating oil and gas prospects in both conventional and unconventional clastic reservoirs, including fractured reservoirs, tight gas sands, and carbonates. In addition, I have utilized probabilistic methods for prospect evaluation and reserves estimation and used this information for comprehensive portfolio management. As the Chief Geologist for Spirit Energy, a division of Unocal Corporation, I focused on opportunities in GOM from 1989 to 2000. As the Chief Geologist, I managed geological quality assurance on all exploration and development projects in the \$600 million capital program, mentored geology professionals, ensured training needs were identified and met, and oversaw geotechnical specialties. Oversight included understanding the geological risk, uncertainty, and resource estimates of prospects in the evolving deepwater GOM play. With similar responsibilities at Samson Companies as Technical Manager of Geology, between 2000 and 2005, I managed geological quality assurance for both the onshore U.S. and the offshore GOM.

10. In 2005, I formed Catheart Energy Inc., an independent exploration and consulting company, to pursue conventional and unconventional oil and gas opportunities. I also maintain a

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consulting practice focused on evaluating exploration portfolios. As a consultant for private equity investors, I have evaluated exploration portfolios, the resource estimates, and the risk and uncertainty associated with those portfolios. The evaluations included several deepwater GOM prospects and portfolios.

11. I have a Ph.D. in Geology from Arizona State University; received an M.S. in Geology from Arizona State University; and a B.A. in Geology from Colby College, Waterville, Maine. I am a Fellow of the Geological Society of America, and a Fellow of the Geological Society of London. In addition, I have served on committees for the American Geological Institute and the board of the Houston Geological Society. I have served as the President and Secretary of the American Institute of Professional Geologists.

12. I am the past editor of the American Association of Petroleum Geologists Bulletin (2019-2022); editor of the Gulf Coast Association of Geological Societies Journal, and serve on the Society of Exploration Geophysicists Geoscientists without Borders Technical Committee. I am co-editor of the Giant Fields of the Decade (2000-2010); Giant Fields of the Decade (1990-2000); and the Giant Fields of the Decade (2010-2020), and I edited Source and Migration Processes and Techniques for Evaluation. I have written numerous publications and internal company reports on regional tectonics, petroleum potential, oil and gas geochemistry, and analysis of petroleum reserves. Additionally, I have presented numerous papers on exploration potential, exploration and development of fractured reservoirs, and exploration risk and reserves analysis.

13. A copy of my curriculum vitae and a list of publications authored in the past ten years are attached as Appendix I.

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### III. MATERIALS CONSIDERED

14. To undertake my work in this case, Class Counsel provided me online access to the extensive database of documents produced by Anadarko and third parties in this case.<sup>2</sup> My database search included relevant geological, geophysical, engineering, and risk assessment information. My investigation included an examination of email correspondence among Anadarko personnel and Shen partners. I also searched online for published technical documentation regarding analog fields in deepwater GOM.

15. A listing of materials I considered as of the date of this report is contained in Appendix II, as well as the citations presented in this report. I reserve the right to prepare illustrative exhibits based on the contents of this report if I am called to testify at trial.

### IV. SUMMARY OF OPINIONS

16. This report is based on the evidence I have reviewed to date. I understand that additional information may become available, including but not limited to relevant opinions and analyses by the parties' experts. As a result, I reserve the right to modify my opinions based on such additional information.

17. Based on my review of the information currently available to me, as well as my education, background, skills, and 48 years of experience in the oil and gas industry, I have formed the opinions below.

18. Leading up to and during the Class Period,

- (a) Shen's resource size shrank substantially with each well post-Shen-2 and fell below the range of expectations for the prospect post-Shen-2;
- (b) Anadarko's resource range for Shen did not adequately reflect its structural uncertainties and sand thickness variability in the Wilcox turbidite fans;

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<sup>2</sup> Many of the documents produced by Anadarko and other entities in this litigation are subject to the Protective Order for which I have executed Exhibit A.

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- (c) Compartmentalization and faulting posed a serious risk to Shen's producible resource size and commercial viability;
- (d) Pressure data could not be used to reliably project OWCs across the Shen field following the results of Shen-3;
- (e) Tar posed a serious risk to the commercial viability of Shen;
- (f) Anadarko designated unsuccessful Shen wells as successful ones;
- (g) Anadarko's Shen resource estimates, field structure and mapping, and reservoir characteristics were overly optimistic based on the internal data.

19. I elaborate on the above opinions in the rest of the report. As stated above, I reserve the right to modify or supplement these opinions.

## V. INTRODUCTION TO SHEN

20. Oil and gas exploration companies, like Anadarko, are in the business of locating hydrocarbons to extract profitably from the earth for sale on the energy market. Geoscientists at oil and gas companies use multiple geological and geophysical data types to search for potential locations to drill an exploratory well. If an exploratory well finds hydrocarbons, more wells may be drilled to evaluate the commercial viability of the discovery. Geologists, geophysicists, and reservoir engineers work together to assess a prospect's producible resource size and commerciality. Appraising an oil prospect is a highly technical enterprise. Accordingly, I have included a Glossary of Oilfield Terms.

21. Leading up to the Class Period, Anadarko created the public perception that Shen was one of the largest commercial oil-field discoveries in deepwater GOM. Following the drilling of the first appraisal well, Shen-2, in March 2013, Anadarko indicated the Shen basin was a \$2-\$4 billion opportunity. This announcement set the public's perception, including myself, that this was a new "giant" field. It was considered so significant that Defendant Ernie Leyendecker was invited to speak at the American Association of Petroleum Geologists Discovery Thinking Forum on the Shen

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discovery at the 2014 AAPG annual convention, where he talked about the very large resource that Anadarko had at Shen (Appendix IV).

22. Throughout the Class Period, Anadarko continued to reinforce the public perception that Shen was a “giant” oil field, describing each new well as successful, even if no hydrocarbons were found, and telling the market that Shen was right within the range of expectations, even as its “resource” size shrank with each well and commerciality was in doubt due to compartmentalization from faulting, tar, and other factors. The evidence demonstrates that throughout the Class Period, Anadarko personnel warned management about the complexity of the Shen geological structure and how that impacted resource estimates as the appraisal drilling progressed. By the end of the Class Period, the resource potential was known to be a fraction of what the public had been led to believe. Anadarko wrote off Shen in May 2017 after presenting it to the public as one of the most significant discoveries in GOM and relinquished its interest in the field in 2018.

23. I use the term “resource” to describe Shen in this case rather than “reserves” because the Shen wells with oil and natural gas indications were not flow tested and could not be classified as “proven” oil and gas reserves during the Class Period. Estimates of producible resource size involve estimating parameters to calculate the volume of hydrocarbons, including accumulation area, net pay, porosity, hydrocarbon saturation, and hydrocarbon recovery factor. Seismic mapping determines the accumulation area. Net pay, porosity, hydrocarbon saturation, and recovery factor are estimated from wells drilled into the target formation, here, that’s called the “Wilcox Formation” at Shen. The Wilcox Formation is divided into the Upper Wilcox and Lower Wilcox. Additionally, Anadarko divided the Upper Wilcox into Zones “1,” “2,” and “3,” and the Lower Wilcox into zones “A,” “B,” “C,” “D,” and “E.”

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24. The Shen wells drilled by Anadarko were in water depths of about 5,700 feet to subsurface depths exceeding 30,000 feet. High temperatures and high pressures make drilling in this environment difficult, and drilling costs are high. The Shen-1 discovery well (WR52 #1) drilled in 2009 encountered 236 ft of oil pay, and the Upper Wilcox was faulted out. Shen-2 (WR #2), announced in January 2013, encountered 1,002 feet of oil pay in what Anadarko identified as eight zones. The Yucatan #1 well was drilled in the second quarter of 2013 in the Shen basin and encountered 120 feet of oil pay. The data from Yucatan #1 negatively impacted the resource estimates for Shen. Shen-3 (WR52 #2) was completed in November 2014 and encountered no oil and gas in the Wilcox sandstones. A Shen-3 bypass core was taken in December 2014 in the Wilcox sandstone to characterize the Wilcox. Deformation bands were identified in the core. Shen-4 (WR51 #3) penetrated the salt in the third quarter of 2015, encountering no reservoir. Shen-4 was sidetracked twice. The first sidetrack encountered 626 feet of net oil pay, and the Upper Wilcox was faulted out. Four faults were identified in the Lower Wilcox C zone. In the second sidetrack a bypass core was acquired with 473 feet of net oil pay in the well bore. Faults were identified in the Lower Wilcox A zone. Final operations were completed in January 2016. Shen-5 (WR 51 #4) was completed in August 2016 and encountered 1,043 feet of net oil pay and encountered a 22 feet tar zone in the Lower Wilcox C zone. Shen-6 (WR52 #3), including a bypass core, was completed in February 2017 and found no hydrocarbons. Anadarko abandoned the Shen project in 2017 as non-commercial after presenting its discovery as one of the most significant discoveries in the Gulf of Mexico. The company relinquished its interest in the field in 2018. Table 1 shows the Shen well operations and their timeline.

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	<b>Well name</b>	<b>Well Number</b>	<b>Status</b>	<b>Spud Date</b>	<b>Completion Date</b>	<b>Comments</b>
Shen-1	Shenandoah #1	WR52 #1, BP #1	236' net pay	2008	2009	Upper Wilcox faulted out; 4 faults in LWC
Shen-2	Shenandoah #2	WR51 #2	1002' net pay	9/17/2012	3/13/2013	Upper Wilcox present; Fault/fractures at top of Wilcox
Shen-3	Shenandoah #3	WR52 #2	Dry	5/29/2014	12/7/2014	
		Bypass Core				Deformation bands
Shen-4	Shenandoah #4	WR51 #3	Dry	5/26/2015	9/8/2015	Wilcox absent; penetrated salt
		WR52 #3 ST-1	626' net pay	9/8/2015	10/26/2015	Upper Wilcox faulted out; 4 faults in LWC
		Bypass Core	473' net pay	10/26/2015	12/21/2015	Faults in LWA
Shen-5	Shenandoah #5	WR51 #4	1043' net pay	3/14/2016	8/14/2016	22' Tar in LWC
Shen-6	Shenandoah #6	WR52 #3	Dry	12/16/2016	2/7/2017	
		WR52 #3 ST-1	Dry	2/19/2017	2/26/2017	Tar in UW3
		Bypass Core		3/8/2017	3/20/2017	

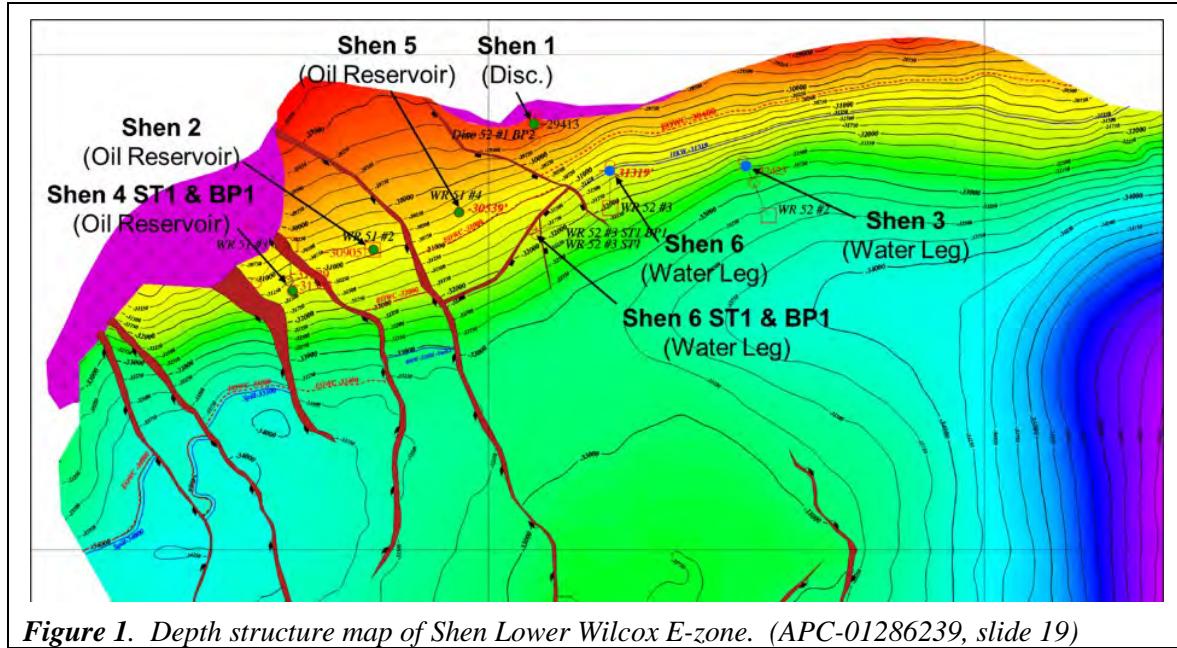
**Table 1.** Shen Wells (2008-2016)<sup>3</sup>

25. Figure 1 below is a 2017 seismic depth structure map that shows the locations for the Shen wells plotted on a Lower Wilcox E-zone structure map. In other words, the map shows the shape of the Lower Wilcox E-zone beneath the earth's surface using contour lines of equal elevation. The Lower Wilcox E-zone is one of several Wilcox zones identified by Anadarko geoscientists, and equivalent zones, under different names, were identified by Anadarko's partners in the Shen project.

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<sup>3</sup> In oil and gas field parlance, "dry" refers to a well that encountered no hydrocarbons, only water. Another term is "wet" well.

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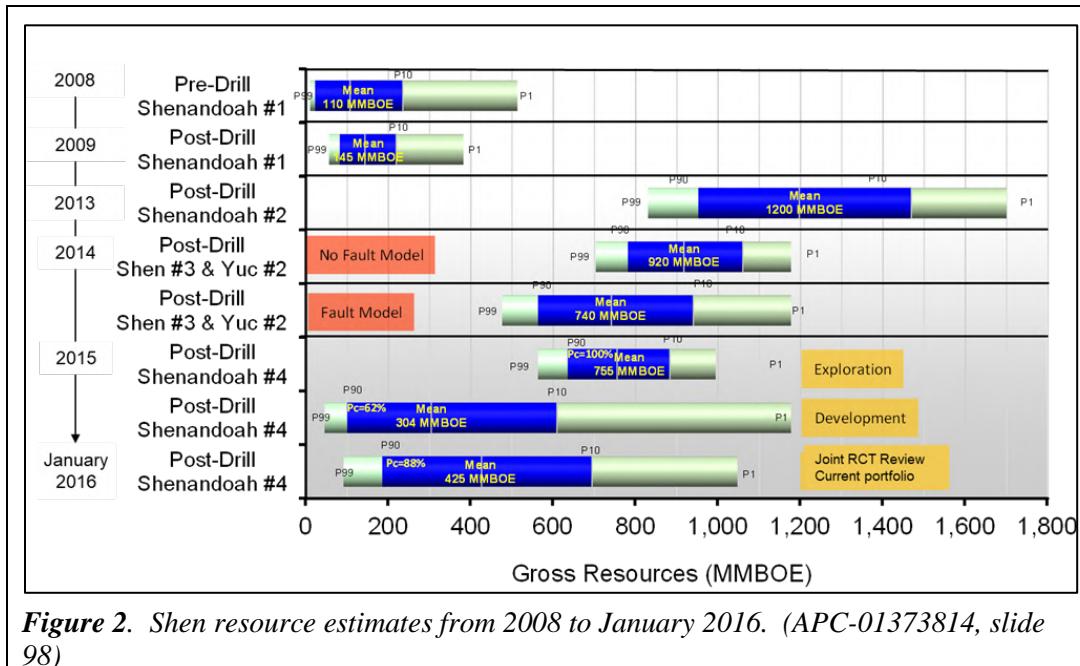


**Figure 1.** Depth structure map of Shen Lower Wilcox E-zone. (APC-01286239, slide 19)

26. Figure 2 below illustrates how Anadarko's resource estimates changed overtime, with a mean gross resource potential of 110 MMBOE before the discovery well was drilled to a high of 1200 MMBOE following Shen-2 in 2013, then revised downward after each subsequent well. After Shen6, the mean was reduced to 207 MMBOE.<sup>4</sup>

<sup>4</sup> APC-00090253, slide 5 (March 1, 2017).

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**Figure 2.** Shen resource estimates from 2008 to January 2016. (APC-01373814, slide 98)

27. During the relevant time period, Anadarko operated Shen with partners ConocoPhillips, Cobalt, Marathon, and Venari. Initially, Anadarko's exploration group mapped Shen as an unfaulted, homoclinal, southward-dipping structure on the north side of the basin. Anadarko clung to this overly simplistic structural picture, despite ample evidence of faulting and compartmentalization, leading to exaggerated statements about Shen's likelihood of successful development, resource size, and value.

28. Many different individuals were involved in the management and technical evaluation of Shen at Anadarko, including a joint team of geoscientists and engineers in the exploration and development departments. A list of key people and their respective titles at Anadarko during the Class Period is found in Table 2 below.

<b>Table 2. Persons Involved in Anadarko Management and Technical Evaluation of Shen</b>	
Walker, Al	Chief Executive Officer
Gwin, Bob	Executive Vice President of Finance and CFO
Kleckner, Jim	Executive Vice President, Deepwater and International Development
Hollek, Darrell	Senior Vice President, Deepwater and International Development

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***Table 2. Persons Involved in Anadarko Management and Technical Evaluation of Shen***

Holly, Brad	Senior Vice President, Operations – Rockies
Daniels, Bob	Executive Vice President, Exploration
Leyendecker, Ernie	Vice President, Gulf of Mexico Exploration
David Blakeley	Manager, Gulf of Mexico Exploration Engineering
Trautman, Tim	Geological and Geophysical Manager, Exploration
Ramsey, Jake	Geologist, Exploration
Johnson, Breck	Geologist, Exploration
Kendall, Beth	Geophysicist, Exploration
Szabo, Shandell	Director of Investor Relations
Strickland, Robert	Reservoir Engineer supporting Exploration
Camden, Chris	Reservoir Engineer supporting Exploration
McGrievy, Pat	General Manager, Development
Browning, Brad	Development
Frye, Lea	Reservoir Engineer, Development
Arnold Rodriguez	Geophysicist, Development
Oudin, Chip	Geophysicist, Development
Noll, Christian	Geologist, Development
Chandler, Paul	Geologist, Development
Shotts, Doug	Risk Consistency Team (RCT )

## VI. RELEVANT GEOLOGICAL BACKGROUND

29. The Wilcox Formation, which constitutes the reservoir sands at Shen, was deposited at the base of the continental slope by turbidite flows. Turbidite sediment flows follow channels between structures created by salt movement. A turbidite deposit consists of a thick channel deposit, and sediment thins laterally from this channel, causing the sand to pinch out laterally. Turbidite events are periodic, so shales accumulated during the quiet periods between events, vertically isolating sandstone deposits. As sediment accumulated, upward-flowing salt deforms the margins of the deposit. As the salt substrate moved laterally and vertically, the overlying sediment distorted, causing faults and fractures. Today, we find sedimentary subbasins isolated by vertical salt diapirs

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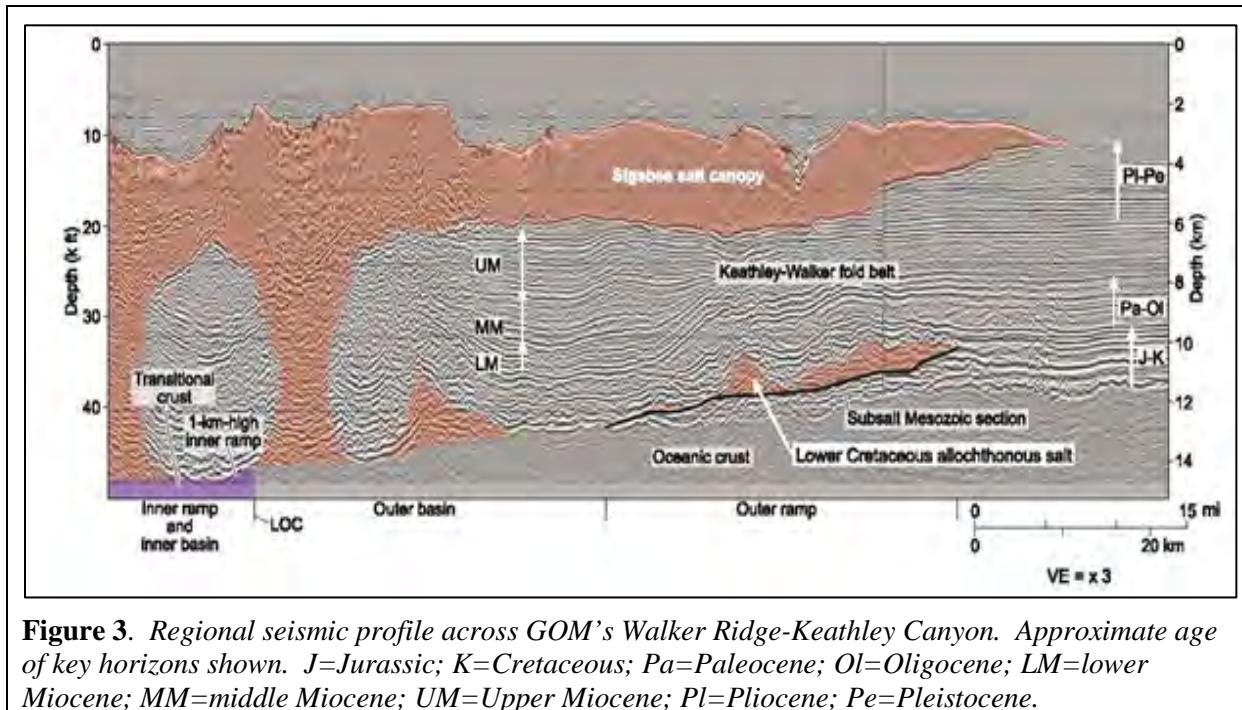
feeding the salt canopy. Shen is one of these subbasins. In these subbasins, one would expect to find variable sediment thickness across the basin away from turbidite channels, lateral pinching out of individual sands, faults, fractures, and deformation bands caused by differential movement within the sediment column.

30. Shen is located in the Walker Ridge protraction area, Blocks 51 and 52, about 160 miles south of the Louisiana coastline at a water depth of about 5,750 feet. The project is in what is known as the “Subsalt province” due to the overlying salt canopy, specifically, the “Wilcox Trend” for the Wilcox Formation reservoir rock. This trend is in the “Deepwater GOM,” a geological province characterized by complex structures caused by rapid sediment deposition and mobile salt intrusions. With sediment loading, salt from deep in the basin flowed vertically and spreads laterally, forming the Sigsbee salt canopy, which now blankets the Subsalt province. The interaction of these two features creates complex petroleum systems, as illustrated in Figure 3 by Weimer *et al.*, 2017, p. 966.<sup>5</sup> The Wilcox sediments are below the Lower Miocene.

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<sup>5</sup> Paul Weimer, *et al.*, 2017, “An overview of the petroleum systems of the northern deep-water Gulf of Mexico,” *American Assoc. of Petroleum Geologists*, v. 101, no. 7, at 941-993.

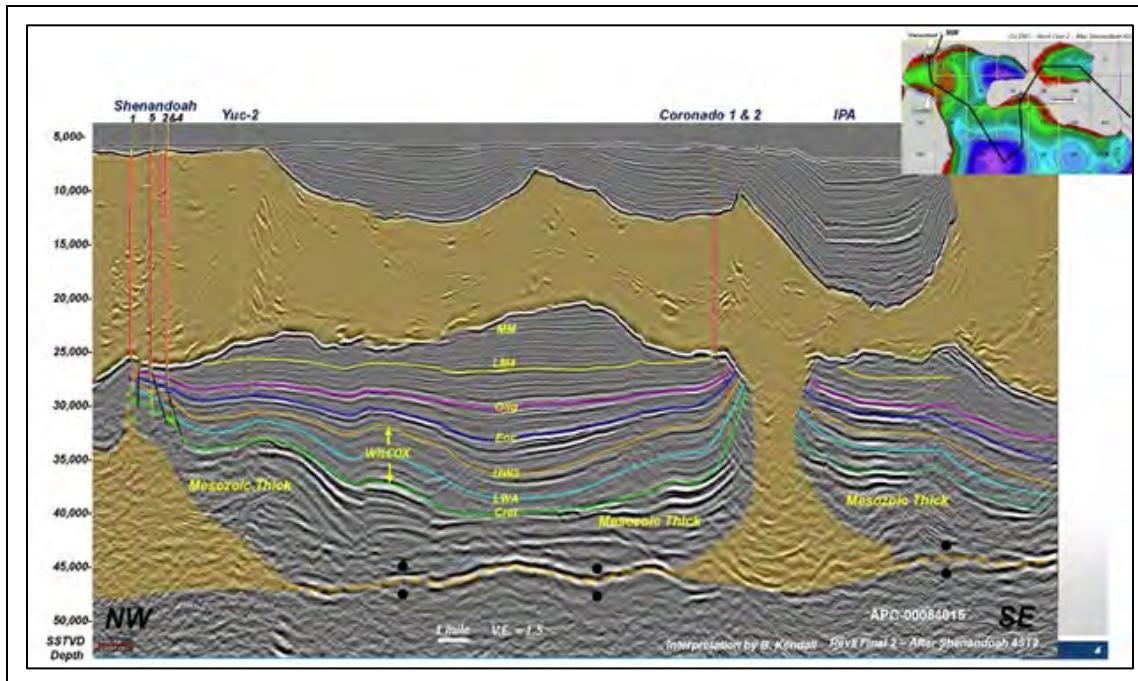
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31. To understand the complex petroleum structures in this environment, it is important to have a geological understanding of the salt's movement and how that created the salt canopy, salt diapirs, and the Shen basin itself. The discovery Shen-1 well was completed in February 2009 with a total depth of about 30,000 feet in the Shen basin. Figure 4 depicts an arbitrary seismic line across the Shen basin, and illustrates that salt has moved upward from below the "Mesozoic thick" and the salt canopy overlies the basin's sediments. The salt is primarily halite (NaCl) "that is mechanically weak and flows like a fluid, even at geologically rapid strain rates" (Hudec and Jackson, 2007).<sup>6</sup> The salt is less dense than the overlying carbonate rocks and clastic sediments, and is inherently unstable with loading. The overburden pressure from accumulating deposits causes the salt body to flow laterally, away from the sediment loading, then vertically. Sediment deformation caused by vertically migrating faults creates faults in the sediment. When the salt meets an overlying resistant bed, it spreads laterally, forming the canopy.

<sup>6</sup> Michael R. Hudec & Martin P.A. Jackson, 2007, "Terra infirma: Understanding salt tectonics," *Earth Science Reviews*, v. 82, no. 1, at 1-28.

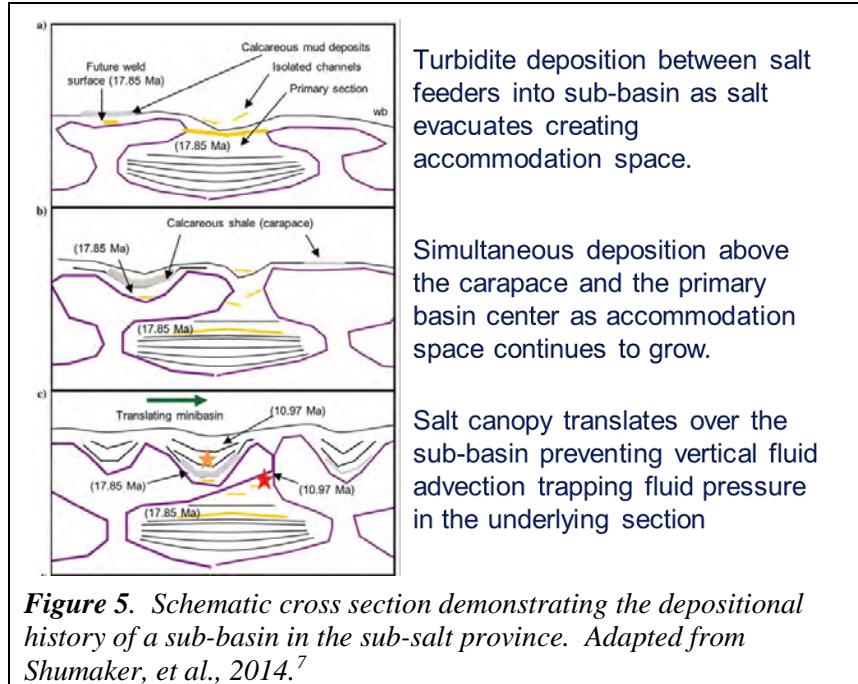
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**Figure 4.** Arbitrary seismic line across the Shen basin. Black dots indicate a “salt weld” where flowage removed all the salt. (APC-00084015, slide 5 (October 2016))

32. As the salt moves laterally, the overlying sediment collapses differentially. The basin formed by this collapse, such as the Shen basin, becomes a locus for sediment deposition. Sediments from the North American continent were carried across the continental shelf and deposited in these intraslope basins as turbidite deposits, as illustrated in Figure 5. As a geologist, I would expect that in the geologic environment dominated by salt evacuation basins such as the Shen basin, vertical salt movement through salt feeders and subsequent development of a salt canopy would fracture the existing rock volume beneath the salt canopy. The expected result would be dominated by radial faults away from the salt feeders and possibly some concentric faults caused by salt canopy expansion.

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33. Sediments from the north, carried by turbidity currents, accumulated in the deeper parts of the basin, thinning on the basin flanks and away from the turbidite channels. The continued upward movement of salt caused faults and fractures in the sediments, and the salt canopy developed as the salt spread laterally. Figure 6A is a thickness map (isochore) of the Upper Wilcox 3 zone, and Figure 6B is sketch of a typical turbidite fan. Purple colors on the map are areas where the Wilcox zone is less than 1,000 ft thick, and the light blue colors indicate a thickness of over 1,500 ft. Lateral thinning of the turbidite lobes creates pinchouts of potential reservoir sands.

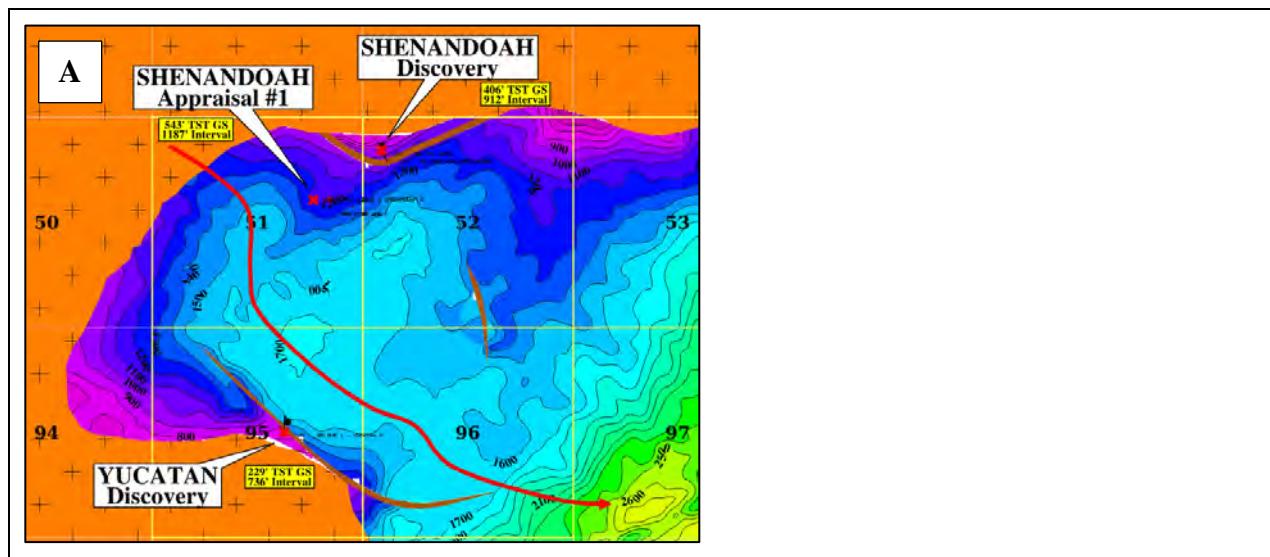
34. Turbidite deposits are thickest in the axis of the deposit, and individual lobes develop laterally off the axis. For example, the Shen-2 well is positioned near the main channel of the turbidite lobes in the thickest part of the Lower Wilcox accumulation. The 2013 Anadarko isochore map, Figure 6A, suggests that the main turbidite channel flowed from the northwest to the southeast. The lobe elements give lateral stratigraphic complexity to the deposit as the deposits thin laterally

<sup>7</sup> Adapted from Niven Shumaker, et al., 2014, "Kinematic linkage between minibasin welds and extreme overpressure in the deepwater Gulf of Mexico," *Interpretation*, v. 2, no. 1, at 75.

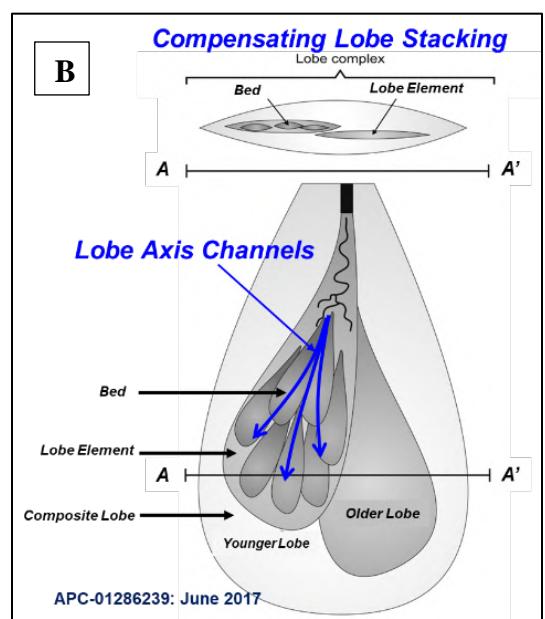
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away from the main channel towards the basin margins. The Venari isopach map in Figure 7 depicts this thinning because the main sediment pathway into the basin is from the northwest of the basin. Sediment lobes accumulate on the margin of the central depositional axis. Interbedded sands and shales create stratigraphic variability towards the turbidite deposit margin and the edge of the basin.

35. Thinning on the basin margin, away from the main sediment pathway, suggests stratigraphic variability is likely, as the sand beds accumulate on the margin of the central depositional axis. As indicated in Figures 6 and 7, the sands deposited in turbidite fans have significant changes in thickness over relatively short distances. Projecting sand thickness to an undrilled location is highly uncertain in this environment. Because of the periodic nature of turbidite deposits, intervening shales serve as vertical seals to hydrocarbon migration, and lateral bed pinch-outs serve as potential traps. A trap essentially prevents oil from moving from one reservoir to another. The resulting compartmentalization requires more wells and makes it more costly to extract oil. These are fundamental principles that senior management at Anadarko would have been aware of at the time. Accordingly, Anadarko ignored this fundamental principle resulting in inaccurate assumptions about the subsurface.



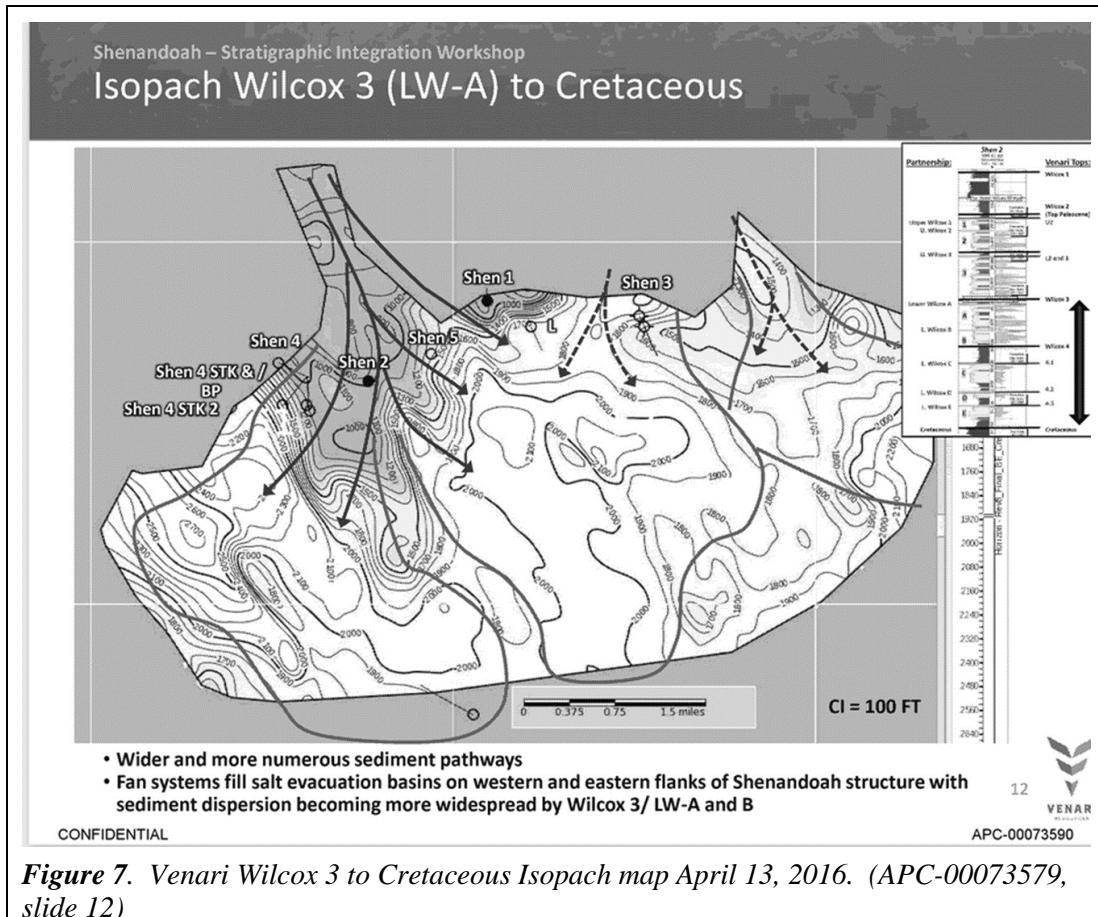
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**Figure 6A.** Isochore map from seismic showing the thickness of the lower Wilcox. Blue colors indicate thick sediments. The red line is a possible axis of sediment deposition. (APC-00001505, slide 14 (September 2013))

**Figure 6B.** Sketch of a typical turbidite deposit, an analog to the Wilcox sandstone sedimentation. (APC-01286239, slide 24 (June 2017))

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**Figure 7.** Venari Wilcox 3 to Cretaceous Isopach map April 13, 2016. (APC-00073579, slide 12)

## VII. RISK ASSESSMENTS

36. Geoscientists consider several factors to assess an oil prospect's uncertainty, including the factors below from available geological and geophysical data, and assign each factor a confidence level between 0% and 100%. Peter R. Rose (1992) first considered three elements to describe the chance that a well finds hydrocarbons: reservoir presence, hydrocarbon charge, and sealed closure.<sup>8</sup> Subsequently, he added two additional parameters: containment and migration.<sup>9</sup> Multiplying the percentages together, assuming independence, results in the probability of “geologic success” (Pg). Pg is an input to the Multi-Method Risk Analysis (MMRA) software developed by

<sup>8</sup> Peter R. Rose, 1992, "Chance of Success and Its Use in Petroleum Exploration," *The Business of Petroleum Exploration*, Ch. 7, Part II, at 74.

<sup>9</sup> Peter R. Rose, 2000, "Exploration Economics, Risk Analysis, and Prospect Evaluation," Course Notes, Rose & Associates, LLP, at 175.

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Rose and Associates L.L.P. and used by Anadarko for probabilistic resource assessment. After discovery and appraisal wells indicate sufficient oil and gas resources for commercial development, the reservoir characteristics dominate the risk profile. Such factors include:

- (a) Is there an adequate source rock available to generate hydrocarbons, and when were the hydrocarbons generated?
- (b) Was a hydrocarbon trap present when hydrocarbons migrated?
- (c) Is there a reservoir rock present at the drill site and of sufficient quality to produce hydrocarbons?
- (d) Is there a trap present to ensure closure, and how reliable is the map, including data quality?
- (e) Traps require containment, top, bottom, and an effective lateral seal. Are these factors present?

## VIII. RESOURCE ASSESSMENT

37. Hydrocarbon volume depends on the porosity (pore space percentage), accumulation area, hydrocarbon saturation, net reservoir feet, and recovery efficiency. Resource estimates refer to the volume of hydrocarbons that the reservoir can hold and economically recover. Resource estimates may be probabilistic, expressed as a range of uncertainty from P90 to P10, or deterministic, expressed as a single value. In this case, the joint Shen team comprised of both exploration and pre-development personnel, each team calculated independent probabilistic or deterministic resource estimates.

38. Several tools are available within the industry to make these resource estimates. For example, the Multi-Mode Risk Assessment tool (MMRA) of Rose and Associates is one of the most common and was used by Anadarko personnel on the Shen project. With the MMRA, according to Anadarko's conventions, a P90 accumulation means a 90% chance that an accumulation will equal or exceed that value. In other words, P90 is the smallest resource volume used in an analysis. P10 suggests that there is only a 10% chance of the accumulation exceeding that volume; it is the largest

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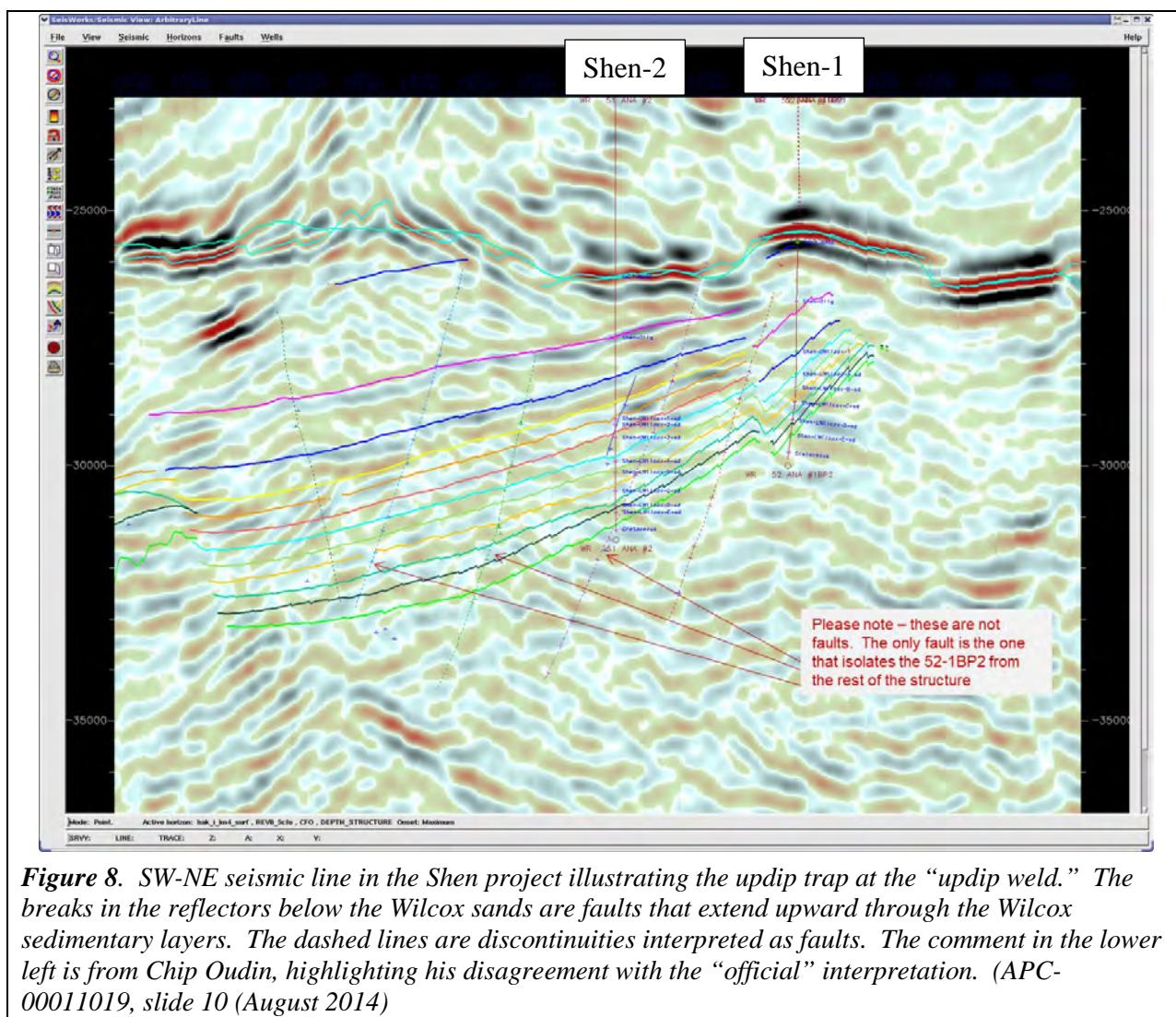
resource volume in an analysis. A standard check for a probability distribution is to examine the absolute minimum P99 and the absolute maximum P1 to determine if the predicted P1 and P99 values are reasonable. In addition, the probability function calculates the median (P50) and mean expected resource. Industry experience gives ranges of the P10/P90 ratio, which measures geologic uncertainty or risk. The P10/P90 ratio is commonly accepted by companies using the MMRA software as a measure of resource uncertainty. In other words, a prospect in a producing basin, but a new trend is expected to have a P10-P90 ratio of 45-129. A prospect in an established trend is expected to have a P10-P90 ratio between 10 and 45. The list below is arranged from least certain to most certain, as published by Rose and Associates, LLP.

- (a) Frontier prospect (no production in the basin) P10/P90 = 120-650
- (b) Rank wildcat (producing basin, but a new trend) P10/P90 = 45-120
- (c) Prospect in the same trend P10/P90 = 10-45
- (d) Close in/Drill Deeper (Nearby production) P10/P90 = 5-10
- (e) Development (Established production in the field) P10/P90 = 2-7

39. Recovery efficiency is a critical parameter in resource calculation. Recovery efficiency measures how easily hydrocarbons flow through the rock and depends on the reservoir's permeability and compartmentalization or flow barriers. Reservoir compartmentalization and flow barriers that affect oil and gas recovery are manifested as faults, deformation zones in cores and image logs, stratigraphic variability, and formation pressure data. Fault planes can be barriers to flow, limiting the effective drainage areas of production wells and preventing pressure support between injection wells, aquifers, and production wells. Faults displace the rock on either side of the fault plane. Small faults may be below the resolution of the seismic data. Faults may prevent fluid flow from the downthrown side to the same reservoir on the upthrown side. Deformation along the fault plane may impede fluid flow. Faults can significantly impact appraising feasibility by reducing

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the volume of oil each well can be expected to produce and by increasing the number of production and injection wells required to recover the desired amount of oil. The total cost of injection and production wells at Shen was critical because of the high cost to drill and complete wells in the subsalt, high temperature, and high-pressure environment. It is not unusual for recognized structural complexity in a project to increase with time in a given field because seismic data improves, and newly drilled wells intersect faults and fractures. Figure 8 illustrates how seismic data can identify faults that compartmentalize the Shen basin Wilcox reservoirs.



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40. Given the uncertainty in the Shen project mapped area and the potential variability of sand thickness in the turbidite fans of the Wilcox as described above, the P10/P90 ratios determined by the resource estimates of the exploration team were much narrower than industry experience suggests. In 2008, prior to drilling Shen-1, the calculated P10/P90 ratio was 6. From industry experience, the predicted uncertainty for a Trend Wildcat Well, as the exploration team classified this, should have been 10-45. Following the completion of the Shen-2 well, individual Wilcox zones had P10/P90 ratios between 2.8 and 6.0; most were 3.0 or less, typical level of uncertainty for development projects, not appraisal projects. Because the uncertainty in the updip areal extent as imaged in the seismic, no well penetrations of the oil-water contact, with only two well penetrations, in my experience, I would expect such an appraisal project to have a P10/P90 ratio between 10 and 45, not 2.8-6.0. It is also apparent that Anadarko's exploration team, using MMRA, did not use the standard check of P1 and P99 for either the input parameters or the resource distribution. If the P1 and P99 were scrutinized, the team should have recognized potential issues with the distributions used in the MMRA. In addition, with the separation of Shen-2 and Shen-3 by a fault, the field's oil-water contact or maximum size is questionable. Resource estimates should have decreased because Shen-3 did not contain hydrocarbons and showed fault separation and/or compartmentalization of the prospect. Management had access to the exploration team's resource ranges, and it should have been a red flag as to the unreliability of the resource range for Shen. Further, evidence indicates significant internal dissent by geoscientists and engineers on the joint Shen team from the pre-development department about the resource estimates by exploration management beginning in February 2014.

**IX. COMPARTMENTALIZATION AND FAULTING**

41. The combination of lateral stratigraphic variability, faulting, and fracturing within and on the basin's margins generates complex fluid flow paths within the sediment column, creating a

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significant issue for oil and gas field development. A hydrocarbon trap is formed by an impermeable boundary across which hydrocarbons cannot migrate. Typical hydrocarbon traps in the GOM Subsalt Province include stratigraphic traps, where sediment pinches out laterally against faults and in anticlinal structures. Additional challenges in this complex environment include: 1) drilling through the thick, allochthonous salt canopy, 2) abrupt and unpredictable pressure changes at the base of salt, 3) high temperatures, 4) high pressures, 5) biodegraded oil or tar, and 6) creating asphaltenes that are a production issue. A 2018 study<sup>10</sup> in the Keathley Canyon and Walker Ridge area found that the five Wilcox units in Tiber Field showed no vertical communication across the field. At Tiber Field, four units were in lateral communication except where faults isolate portions of the structure.

42. Faults break an oil and gas field into compartments that affect per-well recovery, requiring more wells and increasing costs. Compartmentalization due to faulting can significantly impact the commerciality of a prospect.

43. Faults significantly contribute to complex fluid flow paths in a reservoir because vertical movement often decreases permeability by shear and dilation in the fault zone, and fault displacement of reservoir beds changes fluid flow paths. Figure 9 from an onshore outcrop shows typical features associated with a fault. The fault zone is typically a zone of crushed rock along a single fault. Slickensides are polished and striated rock surfaces that result from friction along a fault and are diagnostic of fault movement. In his deposition, Paul Chandler noted that the wellsite geologist reported slickensides in drill cuttings from the Shen-4 ST#1 on November 11, 2015.<sup>11</sup> The

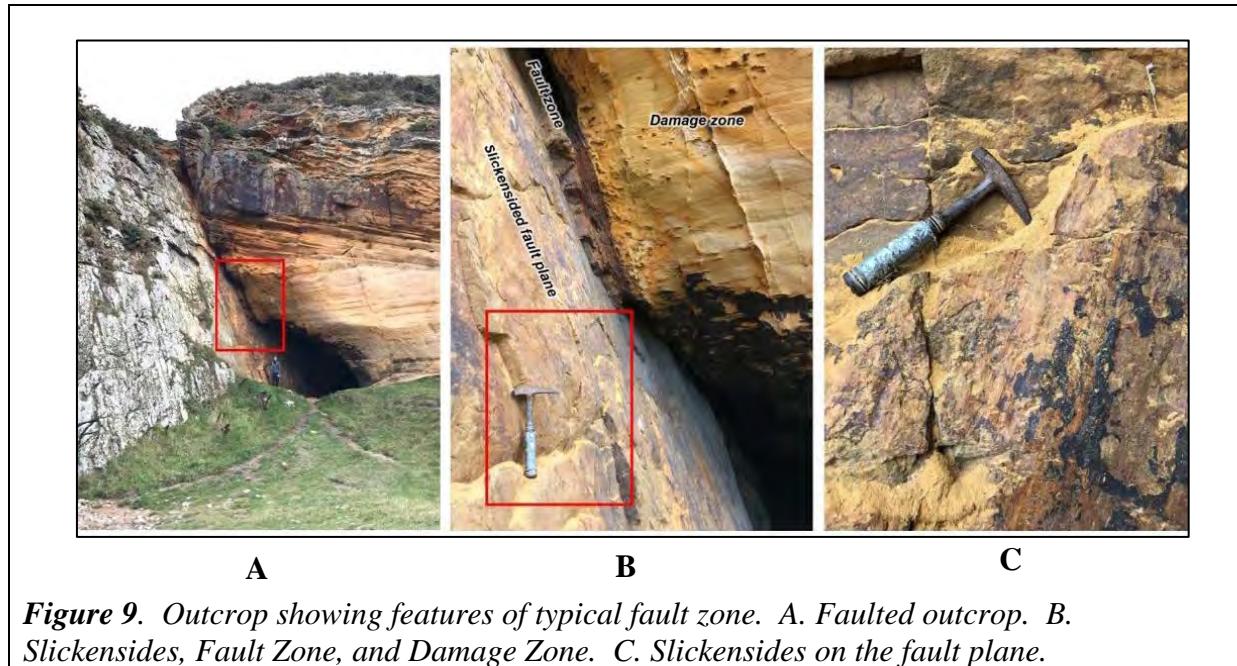
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<sup>10</sup> William F. Morrison, 2018, “Vertical and Lateral Hydraulic Connectivity of the Wilcox Formation for Tiber Field and the Outbound Structural Province of Keathley Canyon and Walker Ridge, Northern Gulf of Mexico,” University of New Orleans Theses and Dissertations, at 2569, <https://scholarworks.uno.edu/td/2569>.

<sup>11</sup> July 28, 2022 Deposition Transcript of Paul Chandler at 188:9-189:25.

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damage zone or “deformation band” that extends is caused by small differential movements in the rock, thus, decreasing permeability.



**Figure 9.** Outcrop showing features of typical fault zone. A. Faulted outcrop. B. Slickensides, Fault Zone, and Damage Zone. C. Slickensides on the fault plane.

44. Therefore, it is critical to recognize the presence of faults because of their influence on compartmentalization. As noted previously, Shen is a homoclinal structure on the north side of the basin with beds dipping from north to south, as shown in Figure 1. The trap type is called a “three-way closure against the base of salt,” which is a typical trap in the northern GOM. The updip contact with impermeable salt forms the trap, and the lateral edges of the hydrocarbon accumulation trap are formed by structure, stratigraphic pinch-out, or against salt.

45. In assessing oil prospects, geoscientists on the multi-disciplinary teams create “maps” of the field, which includes faulting. Quality checking seismic maps is an iterative process using well results (if available), seismic data, and maps. An interpreter correlates formation top depths from well data to the seismic data’s horizon picks. Such a correlation validates the seismic horizon pick used to make a map on that horizon.

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46. For years, Anadarko's exploration group "mapped" Shen as an unfaulted, homoclinal, southward-dipping structure on the north side of the basin. This overly simplistic portrayal of the resource was used to make overly optimistic statements about the resource range and oil-water contacts during the Class Period, contrary to the geoscientific data. The impact of faulting on the feasibility of developing Shen was the most important uncertainty that Anadarko was responsible for addressing as the operator.

47. Based on my review, substantial evidence existed early on of significant faulting at Shen. The geology and geoscience revealed that: (1) MDT pressures indicated that OWC's could not be extrapolated across the field; (2) pressure breaks were indicating a completely broken field; and (3) there was increasing evidence of a sealing fault from seismic imaging and the OBMI data. This made Shen more difficult and expensive to appraise while also portending bad news for recoverable oil and associated economics. For example, Doug Shotts' August 19, 2014 presentation concluded that the combination of heavy north-south faulting combined with mild east-west faulting might reduce the recovery factor to 5% and by -81% for a given volume of oil in place compared to the unfaulted base case.<sup>12</sup>

48. Anadarko was aware of potential faulting at Shen before the Class Period began.<sup>13</sup> For example, by the Spring of 2014, Anadarko geoscientist Arnold Rodriguez had mapped the Shen area with a significant number of faults cutting the prospect.<sup>14</sup> This demonstrates that Anadarko was aware of faults in Shen that, in my expert opinion, would impact the development plan. Additionally, partner communications identified faults and potential fault compartments by the Spring of 2014.

<sup>12</sup> June 29, 2022 Deposition Transcript of Doug Shotts at 68:10-69:19.

<sup>13</sup> Deposition Ex. 395; *see also* Deposition Ex. 251.

<sup>14</sup> APC-00822587, slides 3-4.

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49. On March 26, 2014, Rodriguez warned McGrievy and Frye that there were probably more faults than he was able to map given the current seismic imaging quality:

*Subject: Shenandoah Upper Wilcox Structure*

*Mapping update with the current volume. This is the faulted version and realize that there probably are more faults than I am able to map with the current seismic imaging.<sup>15</sup>*

50. On March 31, 2014, Browning responded to Rodriguez's recent structural and fault interpretation. Browning made an important point that faults with small offsets can be sealing, given the potential for deformation banding in 50 mD permeability rock. When fault offset exceeds the gross thickness of the sands, the result will generally be that the fault seals, forming a no-flow barrier with sand on shale contact across the fault. Where fault offset is less than the sand thickness, sand-on-sand contact may or may not be sealing. Deformation banding is where rock is crushed from pressure and movement along the fault, reducing its permeability and potentially causing the fault to seal, even when sand is juxtaposed against sand. Given the noise in the seismic data, Browning also questioned whether the reservoir is "completely broken up" or is it an artifact of noisy data.

*The pink fault is anchored on a deep event with significant offset, but looks to be dying shallow.*

*The red fault looks to have significant offset, but only through one horizon.*

*Really, none of the shallow faults completely offset the Wilcox section. But with deformation banding in 50 md rock, small faults might create drainage compartments.*

*There's a lot of noise swinging through the data. Is the reservoir completely broken up by faulting or noisy data?*

*I wonder if we'll know which is the case until a good number of wells are on production.*

*But certainly, if we get more pressure breaks between appraisal wells, we'll have our answer.<sup>16</sup>*

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<sup>15</sup> APC-00004757 (March 26, 2014).

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51. Browning then questioned whether the reservoir was broken up or just noisy data. In addition, Browning made a very important statement that should have been revisited by Anadarko professionals and management after each appraisal well regarding the significance of “pressure breaks” between wells. Each time a new appraisal well proved to be isolated from its neighbors, this added a significant negative finding establishing fault compartmentalization.

52. Rodriguez responded in the same email chain with the comment that he thought the reservoir was completely broken up as Browning had speculated.

*The interpretation is not completed and some faults have not been fully assessed from the interpretation standpoint. In general, the pink fault on the seismic is approximately 150-220' fault as observed with this ‘raw’ version of processed seismic.*

***I think the reservoir is completely broken as you put it. I want to have the team with Van to look at the effect of mother salt evacuation from the area of the sediment entry point, to and along the axis of Wilcox deposition.***

*There may be two sets of faults. Large faults were active during deposition (syn-depositional), and the numerous smaller scale faults 50-100' are all post depositional or formed primarily to fill the hole formed by the evacuated deep mother salt.<sup>17</sup>*

53. An email exchange dated April 1, 2014 shows how important fault interpretation was to determining future appraisal well locations. Ramsey, with exploration, was included in the exchange with Browning quoted as follows:

*If the “Pink” fault seals, the oil-water contact in the S3 fault block is independent from the S2 fault block.*

*If we receive Yucatan pressure data in the aquifer, we should have an estimated oil-water contact based on gradients from S2, but it will not necessarily be relevant for the S3 fault block.*

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<sup>16</sup> APC-00004880 (March 31, 2014) (emphasis added).

<sup>17</sup> *Id.* (emphasis added).

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*If we find that the estimated contact is above the planned S3 penetration, intentionally drilling a wet S3 test will do nothing to definitely test the large S3 fault block.*

*We cannot assume there is oil above us at S3. (In K2 for example, the north fault block is HC charged in the M14 but the south fault block is wet.)*

*With effectively only one well in our reservoir, I think confirming HC pore volume is still our first priority. Testing aquifer properties might be important, but only after confirming commercial OIP.*

*I believe the sensible approach is to not “finalize” the S3 bottom-hole location until we have data from Yucatan. And if the projected contact is at a level between S2 and S3, we should move S3’s BHL to target above this notional OWC.<sup>18</sup>*

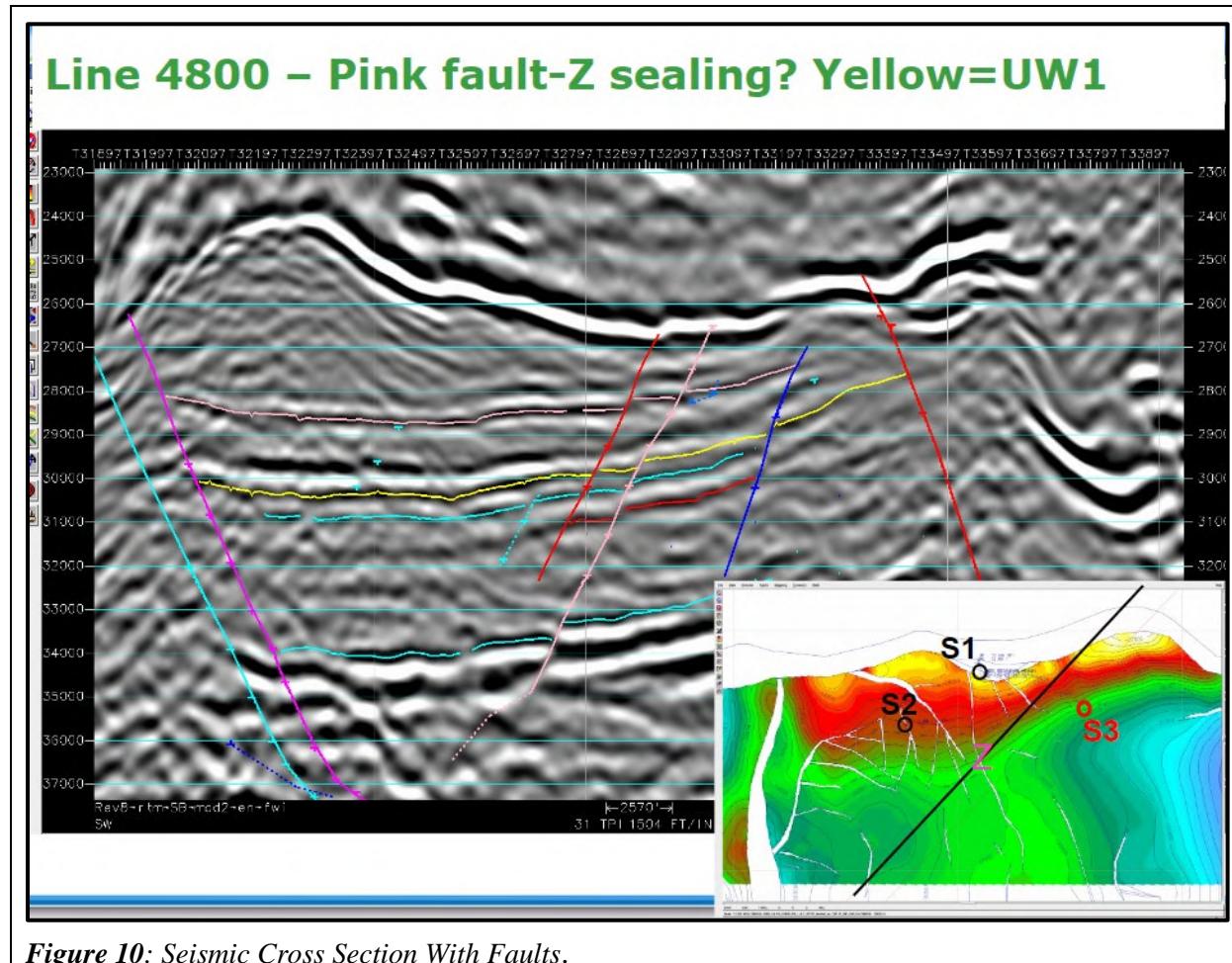
54. The pink fault is depicted in Figure 10, which was part of a presentation by Rodriguez subtitled “Complexly Faulted Model.”<sup>19</sup> Colored lines depict faults in the seismic cross section, and white linear features depict faults in the colored structure map.

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<sup>18</sup> APC-00004964 (April 1, 2014).

<sup>19</sup> APC-00117313, slides 2 & 4 (April 1, 2014). File attached to APC-00117310 referenced below.

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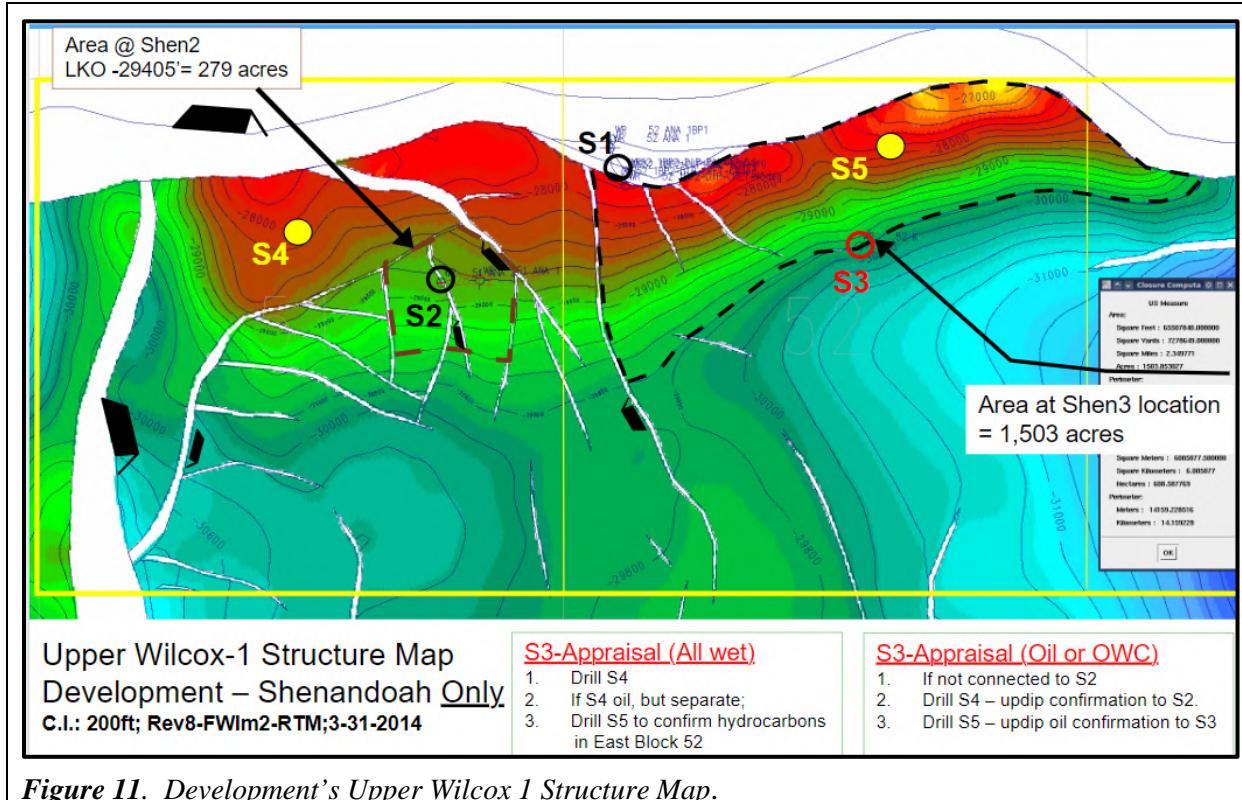


**Figure 10: Seismic Cross Section With Faults.**

55. Figure 11 from the same presentation shows Rodriguez's interpretation of the fault structure at the top of the UW1 horizon, providing outlines of the S2 and S3 fault blocks. Faults are shown as white linear features. This same structure map<sup>20</sup> with development's interpretation of faulting was presented to Kleckner on or after April 3, 2014, based on the file name.

<sup>20</sup> APC-01676709 (April 3, 2014) (file name “2014-02\_Kleckner\_final.pptx”).

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**Figure 11.** Development's Upper Wilcox 1 Structure Map.

56. On April 1, 2014, Browning responded to Strickling, in exploration, sharing the “Complexly Faulted Model” and mentioned that each fault block may have its own unique OWC and that each fault block will need to be tested with a well.

*Arnold is picking a number of faults, (as have our partners I believe). I can get you linked access to Arnold’s map if you’d like.*

*I’m suggesting that there is a “possibility” that the up-coming Yucatan pressure data will indicate that our planned drill location will be wet.*

*It’s just one possible scenario. Other possibilities are that Yucatan aquifer pressures will indicate that Shenandoah is filled to spill; or if Yucatan is full-to-base it may not have any bearing on Shenandoah’s contact, (although it might establish a new highest possible water level for Shenandoah).*

*I’m just trying to encourage discussion on how we might use the information to our advantage. If Arnold’s structural interpretation has any validity, we can’t assume other fault blocks have the same OWC. We have to test each fault block with a well, (starting with the biggest). If our projection when we spud S3 is that it will be drilling into the aquifer, I argue that it’s not the optimum use of appraisal dollars.*

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*I've been told that Shenandoah wells cannot be sidetracked. If that's the case, and we anticipate drilling a wet well, I suggest we "modify on the fly."*<sup>21</sup>

57. Ramsey responded to Browning about the lack of consensus around the impact of faulting on the structural interpretation, and that considerable information will be necessary for the various parties to converge on their interpretation.

*Thanks Brad. I'll check with Jim Kunning on IF the well has any bottom hole flexibility available.*

*An important data point to consider though, is the raw lack of structural consensus (internally and externally) that currently exists at Shenandoah. I have seen eight different maps of Shenandoah from six different companies (two different maps internally), and the only similarity between the 8 is the overall 3-way shape. Attached are the maps from our Shen partners, that were traded several months ago. Unfortunately at the pace I am observing, we will likely not have a consistent map between all respective mappers, until a whole lot more data comes to light (final and consistent seismic to start, pressure data, FLAIR/geochemistry, and possibly even production PTA). Given all the structural uncertainties we currently have with everyone involved, I think it will be a very hard task to persuade a majority of parties (internally and externally) to modify the current bottom hole location of Shen-3, based purely on the Yucatan pressure data. I'll personally be looking at it hard and weighing the options appropriately, but I am mindful of the very complex dance that will ensue.*

*With all that said though, if any north-south faulting exists that could potentially compartmentalize Shenandoah, it would represent the largest risk element to appropriately appraising this project. It's my opinion, that we should come to a consensus internally, on the probability of any potential faulting at Shenandoah, and particularly regarding the "pink" fault. We're using the same data, we're all on the same APC GOM team, so there should be no real reason we can't reach a consensus. If we are aligned internally, then we will be able to make the appropriate appraisal decisions as operator.*<sup>22</sup>

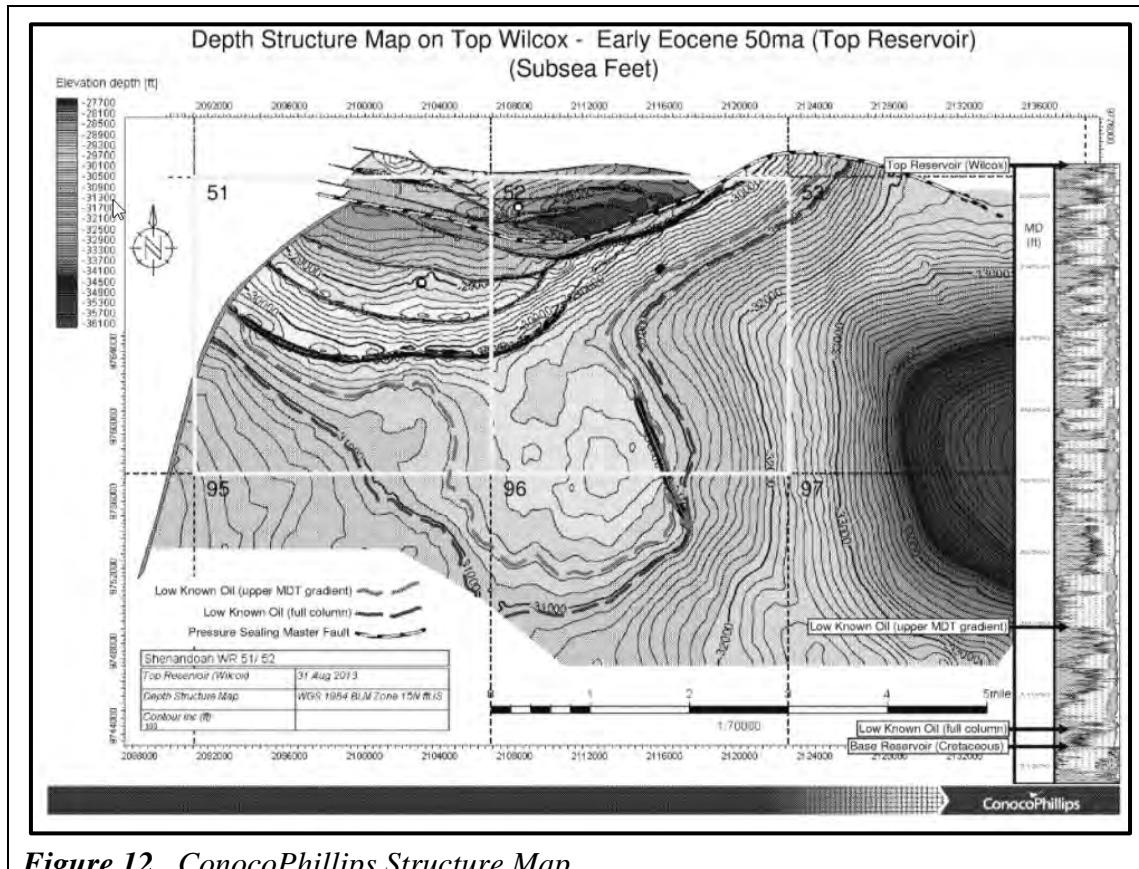
58. An example of a differing partner interpretation is ConocoPhillips' interpretation showing extensive east-west faulting in the top of the Wilcox structure map,<sup>23</sup> shown in Figure 12. The faults are shown as dark curvilinear features.

<sup>21</sup> APC-00117310 (April 1, 2014).

<sup>22</sup> APC-00117318 (April 1, 2014) (emphasis added).

<sup>23</sup> APC-00117345 (contained in file APC-00117344 (July 31, 2013)).

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**Figure 12.** ConocoPhillips Structure Map.

59. Ramsey made a very important statement regarding the importance of fault compartmentalization in apprising the Shen field, stating that “*if any north-south faulting exists that could potentially compartmentalize Shenandoah, it would represent the largest risk element to appropriately appraising this project.*”<sup>24</sup> Ramsey forwarded this exchange to Trautman, his manager in exploration, and included the following comment: “*Paints a good picture on their value of the north south fault trending down the center of Shenandoah and how it impacts THEIR forward planning.*”<sup>25</sup> This statement indicates that the threat of faulting was not a concern of exploration, and only the development team considered it in their well planning logic. The emphasis of capitalizing “THEIR” appears to dismiss the risk of faulting, representing faulting as development’s

<sup>24</sup> APC-0117333 (April 1, 2014) (emphasis added).

<sup>25</sup> *Id.*

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concern and not exploration's concern. As a joint team, planning an appraisal program and evaluating project commerciality, compartmentalization by faulting impacts the number of wells and, ultimately, the capital investment required to produce the hydrocarbons. Accordingly, it should have been both team's concern.

60. The same day, Browning wrote to McGrievy that "it would be a huge mistake to go to project sanctioning assuming that our largest mapped fault block, (S3), has the same oil-water contact as the S2 fault block."<sup>26</sup>

61. Nevertheless, Anadarko exploration management continued to require the use of a simple, unfaulted, laterally continuous structural model. Despite evidence of faulting, adherence to a best-case scenario led to highly optimistic public statements that exaggerated the likelihood of successful development, resource size, and value. No later than August 2014, the pre-development personnel on Shen objected to the "no-fault" model used by exploration and identified evidence of a fault in Shen-2. My experience exploring the Gulf of Mexico leads me to conclude that the development team's structural interpretation of Shen, with faults, was more credible than the exploration team's homoclinal structure interpretation. Their interpretation was confirmed as subsequent wells intersected faults showing associated fault compartmentalization. In 2014, Leyendecker criticized the development team's maps. Even in his deposition, Leyendecker admitted he did not include seismic data in his review of the alternative maps, and thus his review was incomplete.<sup>27</sup>

62. Figure 13 shows the change in mapping between the completion of Shen-1 and Shen-3. After drilling Shen-2, the development team mapped faults throughout the Shen prospect,

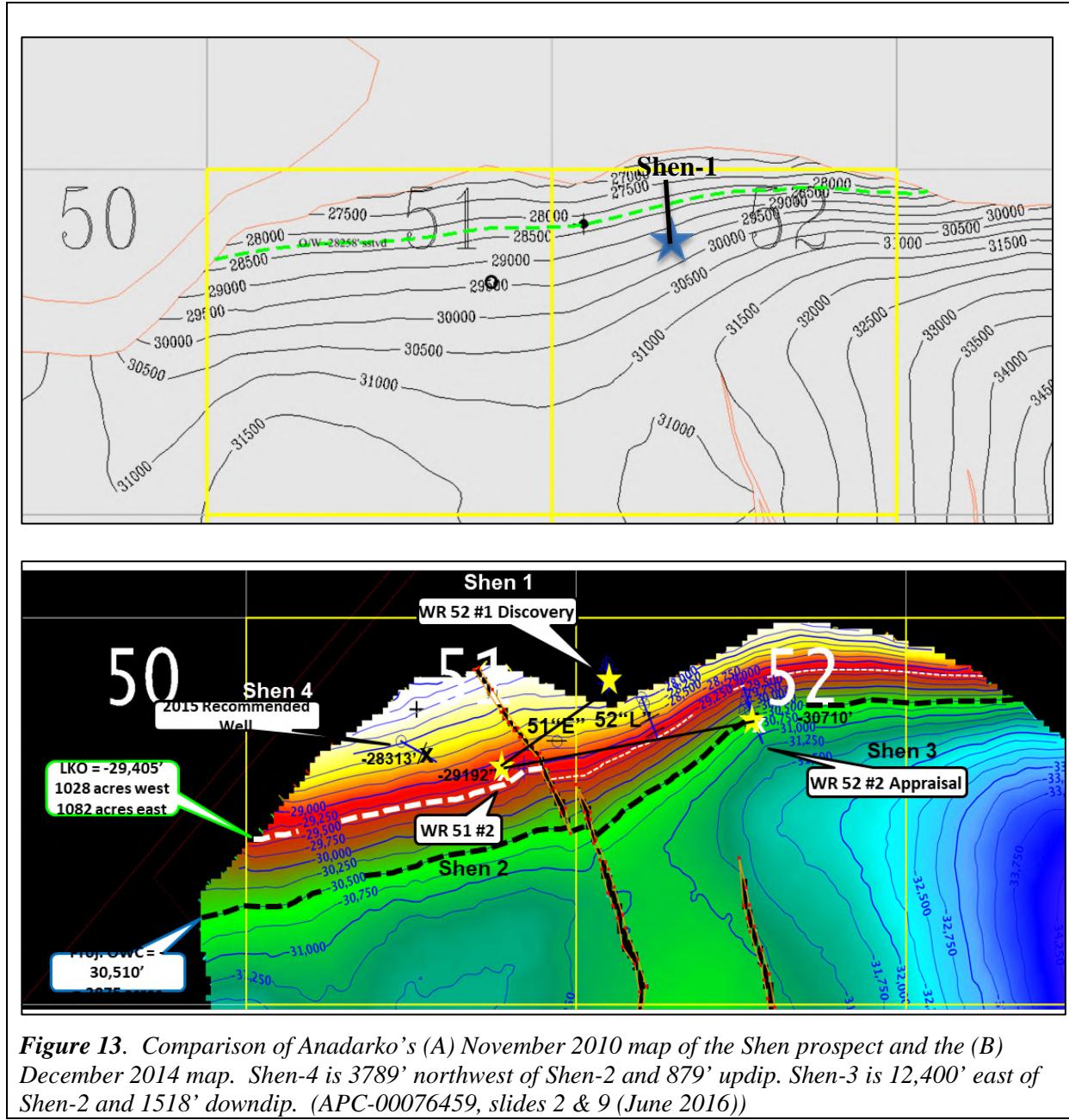
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<sup>26</sup> APC-00004967 (April 1, 2014).

<sup>27</sup> September 22, 2022 Deposition Transcript of Ernest A. Leyendecker, III at 232:23-24.

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including a fault separating the Shen-2 (WR-51#2) fault block and the eastern fault block containing Shen-1 (WR52 #1) and Shen3 (WR52 #2) wells (Figure 11).



**Figure 13.** Comparison of Anadarko's (A) November 2010 map of the Shen prospect and the (B) December 2014 map. Shen-4 is 3789' northwest of Shen-2 and 879' up dip. Shen-3 is 12,400' east of Shen-2 and 1518' down dip. (APC-00076459, slides 2 & 9 (June 2016))

63. Anadarko had four partners in Shen: Cobalt, ConocoPhillips, Marathon, and Venari. Partners can function as project peer reviewers and provide a sounding board for scientific ideas. This is in addition to internal peer review, which the “Quality Assurance Team” often facilitates, or

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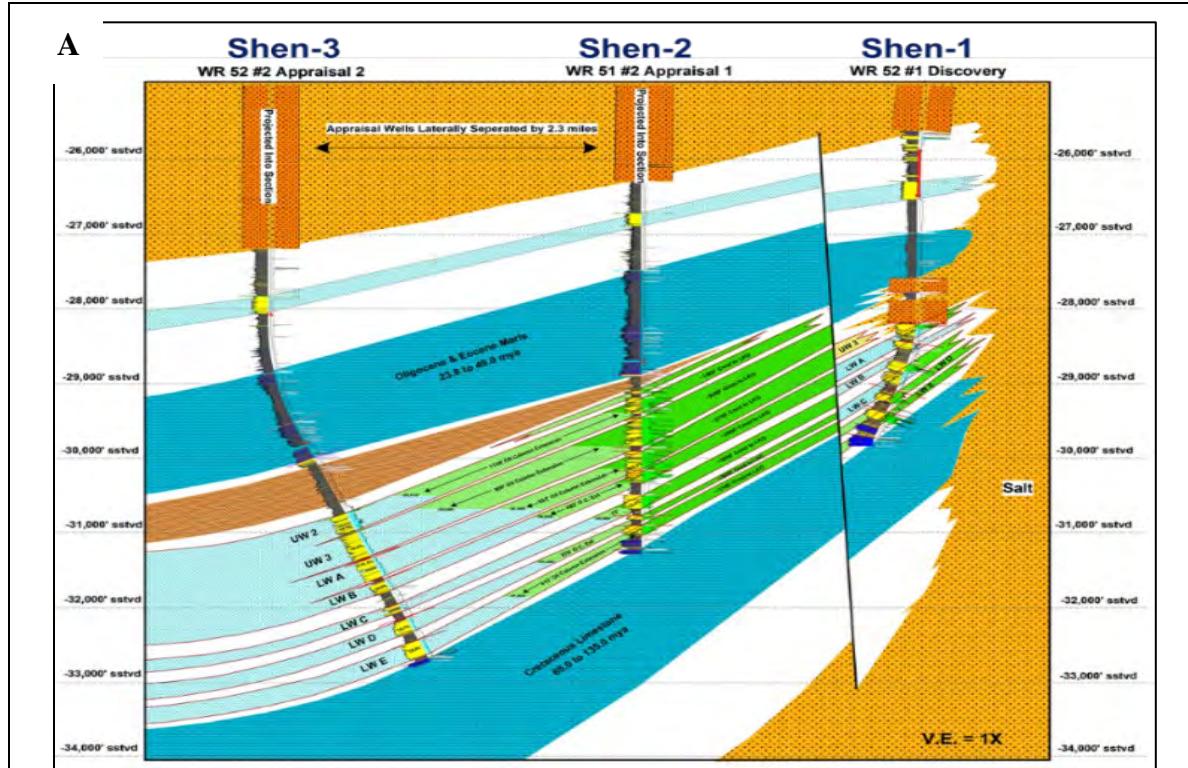
in this case, the RCT. As to Shen, Anadarko's exploration team ignored the development team's concerns and partner interpretations.

64. Figure 14A is a schematic cross-section Anadarko presented to the partners at a December 14, 2014, partner meeting. The cross-section line is oriented north-south with the Shen-1, Shen-2 and Shen-3 projected onto the cross-section.<sup>28</sup> There is a single fault on the cross-section; that fault separates Shen-1 from the other two wells. The accompanying structure map shows the line of the cross-section. If one connects the three well locations, the cross-section crosses a line of mismatched contours. The contour interval in this map (Figure 14B) is 250 feet. A careful examination of this map indicates as much as two contours difference across the line. That difference represents 500 ft – such a dislocation is a fault. The cross-section should have a second fault between Shen-1 and Shen-2; similarly, the cross-section requires a fault between Shen-2 and Shen-3.

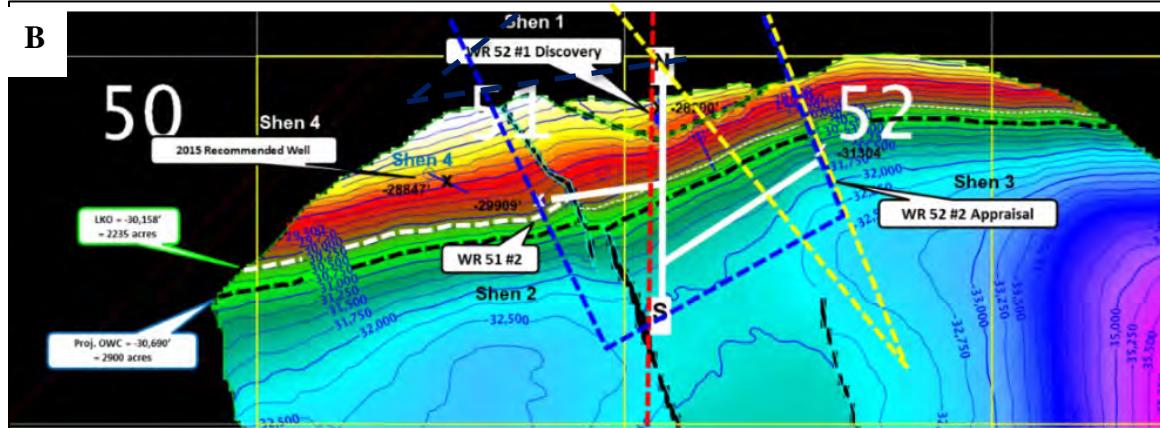
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<sup>28</sup> APC-00001146, slides 53 & 54 (December 2014 Partners Meeting).

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**Figure 14A.** This schematic cross-section of Shenandoah Field was presented in December 2014. (APC-00001146, slide 53 (December 2014 Partners Meeting))



**Figure 14B.** The N-S white cross-section line is shown below the cross-section. Wells are projected onto the north-south line, although the actual line of section crosses the indicated fault separating the east and west sides of the prospect. (APC-00001146, slide 54 (December 2014 Partners Meeting))

65. Figure 16 compares Shen structural interpretations from Anadarko and its partners.

Figures 15A and 15B, Anadarko maps, compare the 2014 exploration "no-fault" map and a

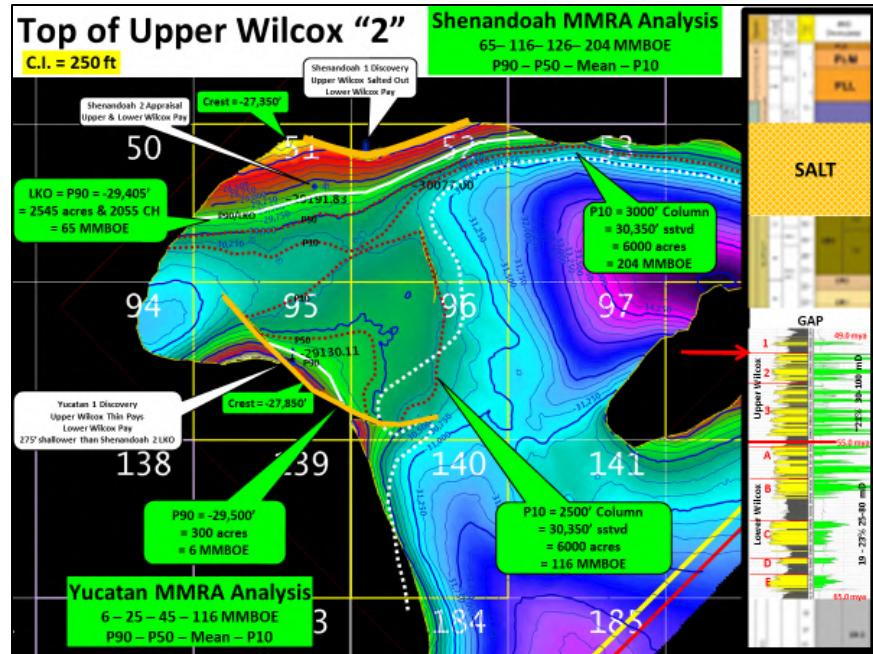
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development “faulted” map. A March 2015 PowerPoint<sup>29</sup> prepared for a partner meeting compares partner interpretations of the Shen prospect. Anadarko’s map showed a NW-SE fault separating Shen-2 and Shen-3 (Figure 16(A)). ConocoPhillips separated the Shen-1 well from the downdip area with an E-W curvilinear fault and shows radial faults separating five fault blocks (Figure 16(C)). Cobalt separated Shen-1 from the remainder of the field with a curvilinear E-W fault and homoclinal dip south of the fault (Figure 16(D)). Marathon map showed homoclinal south dip (Figure 16(B)). Interestingly, Marathon recognized the possibility of fault compartments in a map presented in April 2014 (Figure 17). The Venari interpretation before the drilling of Shen-3, indicated radial faulting impacting the prospect and breaks the prospect into five compartments (Figure 16(F)). The radial faults on the Venari map most closely resemble expected faulting against a salt dome or feeder. Finally, curvilinear faults suggest compression from the north rather than extension typical of salt domes. In this case, the curvilinear faults a likely caused by the southward expansion of the salt canopy. Additionally, radial faults align with breaks in the underlying Cretaceous carbonate formation. As early as August 2014, coherency mapping of the Upper Wilcox shows lineaments that are likely faults (Figure 18).

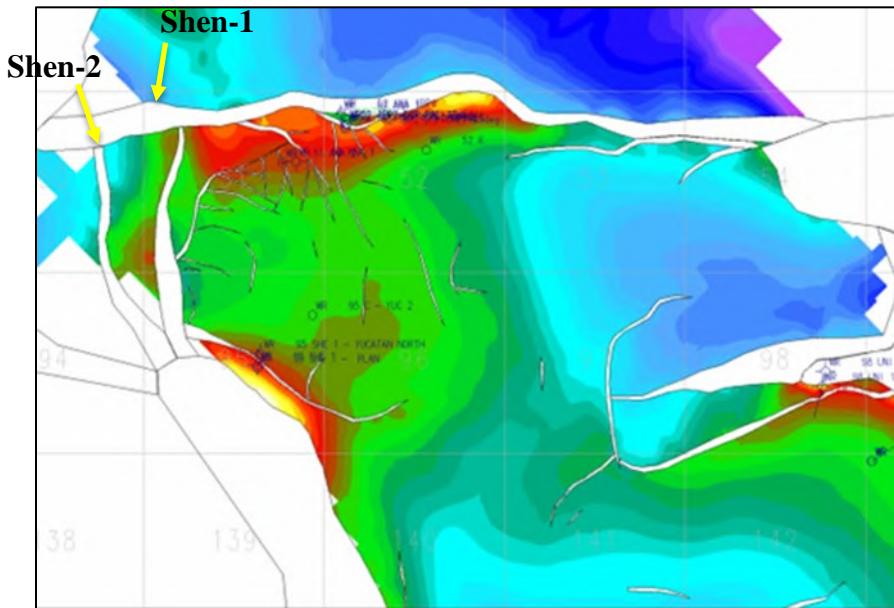
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<sup>29</sup> APC-0086446.

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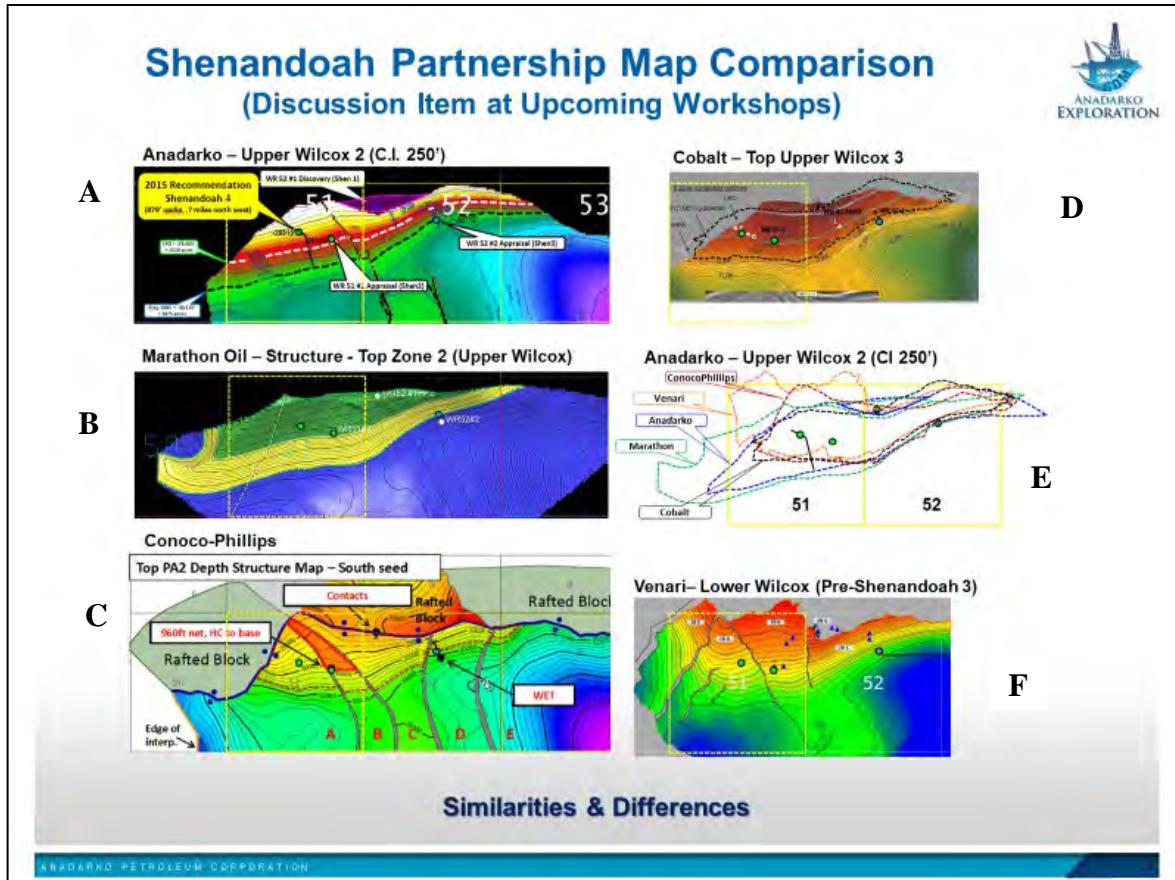


**Figure 15A.** APC seismic depth structure map by exploration of the top of Upper Wilcox "2" August 2013. The "no-fault" interpretation persisted into the Class Period, See Figures 10 B and 19. (APC-0147988, slide 18)

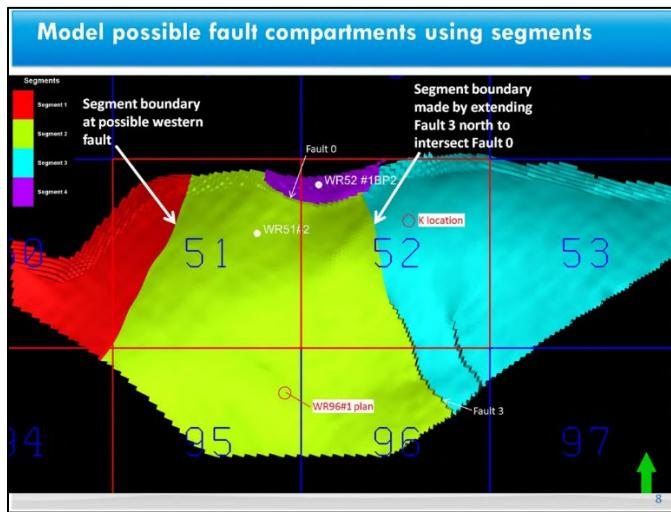


**Figure 15B.** Arnold Rodriguez Shen – Upper Wilcox – 1 structure map (3-26-2014) Note the many faults near Shen-1 and Shen-2 locations. (APC-00822578, slide 4)

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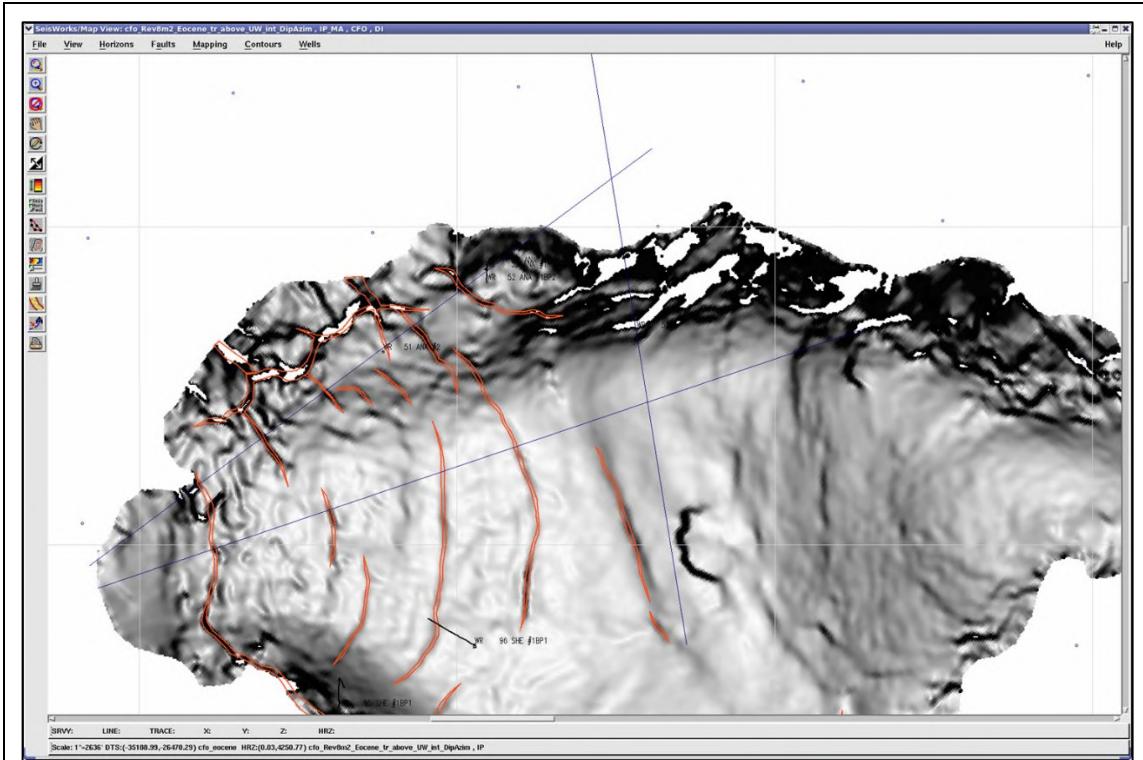


**Figure 16.** Shen partnership map comparison: Similarities and Differences. (APC-00868446, slide 6)



**Figure 17.** Marathon possible fault compartments using segments April 2014. (APC-00147988, slide 8)

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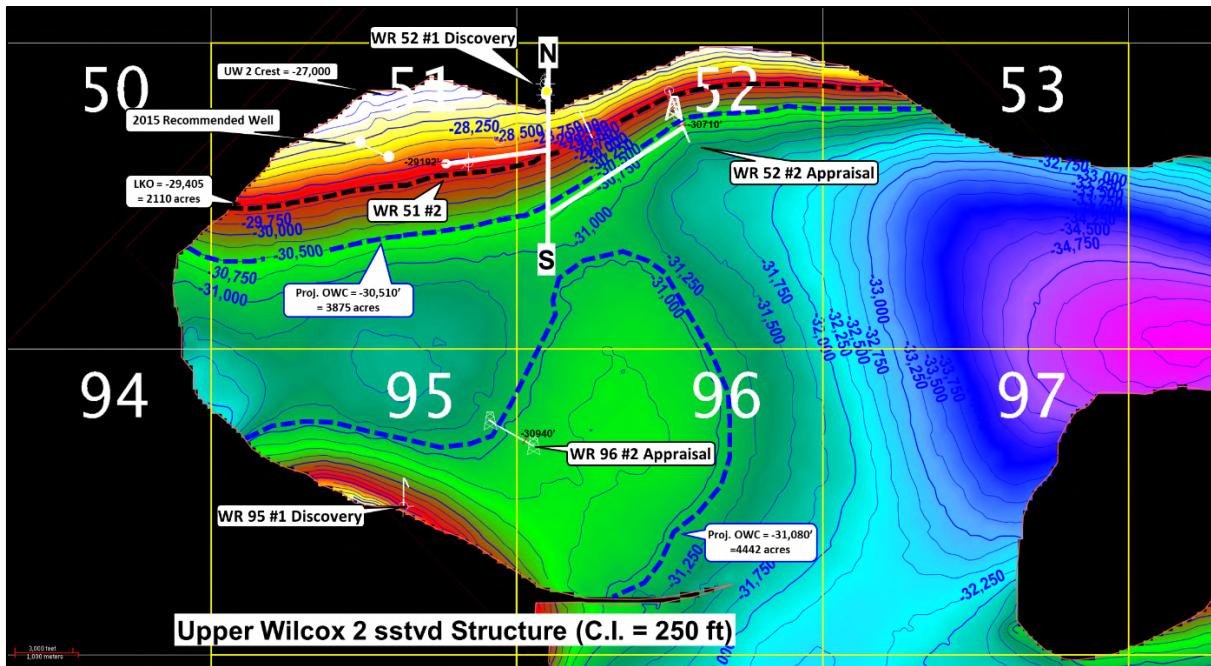


**Figure 18.** Anadarko Seismic coherence (Dip attribute) map, top U. Wilcox August 2014 (APC-00648353, slide 4)

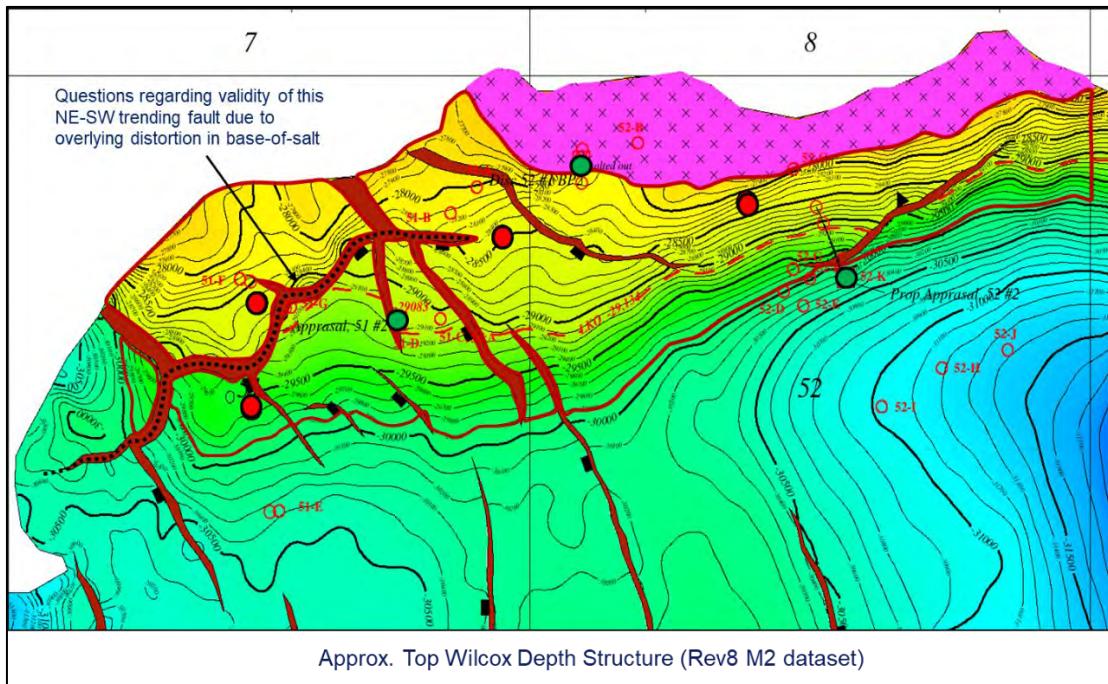
66. Despite evidence presented by partners as well as Anadarko's development group, the Anadarko exploration team continued to use a homoclinal dip map (Figure 19) and influenced the "official" Anadarko position. The public Anadarko resource assessment was based on these maps showing no faults (Figure 19). However, as early as August 2014, the development group used a map with many faults to plan the appraisal and development program (Figure 20). In the September 9, 2015 budget review, the issue of compartmentalization was highlighted by presenting both the exploration "no-fault" pre-Shen-4 map and the development 2014 map.<sup>30</sup>

<sup>30</sup> APC-00193551, slides 12-14.

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**Figure 19.** Anadarko exploration team Upper Wilcox seismic depth structure map November 2014. (APC-00148608, slide 1)



**Figure 20.** Anadarko Approximate Top Wilcox seismic depth structure map August 2014 presented by Chip Oudin, Anadarko Development. (APC-00648353, slide 1).

67. In January 2014, Lea Frye, a reservoir engineer, moved from the Eastern Gulf of Mexico development group to lead the Shen pre-development group. Her assignment was to

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evaluate development scenarios incorporating resource size and recovery uncertainty to maximize the value of the Shen discovery. Ms. Frye played a key role in the evaluation of Shen. Her professional concern about the differences between Anadarko's public announcements regarding Shen and what was known internally led to a "whistleblower" complaint to the Securities and Exchange Commission in Spring 2016.

68. The development team identified the risk of faulting early on. A new seismic interpretation called a "dip attribute" map (Figure 20), coupled with core and well log data, began to clearly demonstrate the risk of reservoir compartmentalization. Figure 17 documents that partner Marathon recognized the risk of compartmentalization as early as April 2014. Despite partner interpretations containing faults and fault compartments in the seismic data and internal, development team interpretations, Figure 19 shows that the exploration team ignored the risk of faulting and fault compartmentalization. However, Anadarko continued to use resource estimate results in their public statements attributed to a single map showing a homoclinal, south-dipping structure with an updip trap against salt.

69. Shortly after being assigned to the Shen project, Lea Frye presented economics for a two-spar development scenario in which she described the "Remaining Uncertainty and Impact." Anadarko management adhered to the exploration interpretation for much of the class period, ignoring the uncertainties and impacts listed in the presentation slide<sup>31</sup> (Figure 21).

70. Before the February 19, 2014 meeting, an email chain dated February 18, 2014, between David Blakeley, Manager, Gulf of Mexico Engineering, and Robert Strickling, reservoir

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<sup>31</sup> APC-01674681, slide 9 (February 19, 2014, Economics of two-spar development).

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engineer supporting exploration, illustrates the beginning of efforts to suppress more conservative data interpretations:<sup>32</sup>

David Blakeley: “*I saw Pat in the partner meeting. He said that Lea is coming up with economics with a PIR of < 4 for Shenandoah. Has she shared her assumptions with you?*”

Robert Strickling: “*Not yet. She is supposed to come up after the partner meeting.*”

David Blakeley: “*Ok. We need to keep from delivering a message to Kleckner that Shenandoah is a marginal project by being overly conservative on assumptions.*”

Robert Strickling: “*Review the economic assumptions with Lea . . . . Recovery factor is 20% instead of our 25% even though water injection is assumed. Platforms cost twice as much as Frank’s sheet estimates. Wells are constrained by drawdown limits. Overall there are fewer wells since re-completions are assumed. However, no learning curve is applied to drilling costs so their total cost for drilling is about the same as ours. LOE is twice what we are using. Downtime for wells and facilities is accounted for by reducing the overall production profile not a schedule. So it is pretty much what we expected. Lea had made slides with our economics and assumptions but I said she probably didn’t want to present those to prevent disagreements over assumptions.*”

71. Exploration continued to insist on a single interpretation with no faulting, while development continued to have serious concerns. Shen-3 was completed in 2014, and encountered no hydrocarbons. In an April 2014 partner meeting, ConocoPhillips recognized lineations at the top of the EO6 horizon (a Wilcox mapping horizon), and the equivalent Anadarko map by Chip Oudin closely approximated ConocoPhillips’ map. These lineations were likely related to faults. A May 13, 2015, presentation titled “Shenandoah Project Overview,” authored by Patrick McGrievy,<sup>33</sup> documented seismic interpretation differences between exploration, development, and Anadarko’s partners (Figure 22).

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<sup>32</sup> APC-00603676 (February 18, 2014).

<sup>33</sup> APC-00001683, slide 14 (May 13, 2015).

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**ANADARKO PETROLEUM CORPORATION**

## Remaining Uncertainty and Impact

- Depositional environment
  - Lateral connectivity and heterogeneity → Well spacing and well performance
- Porosity and permeability trend
  - Depth below mudline sensitive → Aquifer strength impact & well performance
  - Depositional environment sensitive → Well spacing and aquifer strength impact
- Seismic imaging
  - Drilling hazards → Well placement and reservoir accessibility
  - Compartmentalization → Well count and performance

IDENTIFY AND COMMERCIALIZE RESOURCES ■ EXPLORE IN HIGH-POTENTIAL PROVEN BASINS ■ GLOBAL BUSINESS DEVELOPMENT APPROACH ■ ENSURE FINANCIAL DISCIPLINE AND FLEXIBILITY

**Figure 21.** Lea Frye's "Remaining Uncertainty and Impact" slide presented on February 19, 2014.

72. In my expert opinion, the lack of faulting in the exploration maps should have raised issues. Faulting creates compartments bounded by faults and associated deformation that individual wells must drain. However, a structure with no faulting eliminates the compartments, and larger areas are drained, resulting in an optimistic resource determination. The development team recognized potential faults in 2013, shortly after the completion of Shen-2<sup>34</sup>, which cuts the "simple" structure into two areas and showed mapped faults (Figure 19). In the Shen-2 well, OBMI (Oil-based Microimager) data suggested a fault existed near the top of the Wilcox, fractures in the Wilcox, and a possible fault near the base of the Wilcox. Paul Chandler was asked in his deposition: "*And it's helpful to look at OBMI data and compare them against seismic data, right?*" He testified: "*Yes. The OBMI data, of course, was run in the bore hole of whatever well that they were talking about here. And if you can find breaks in the rock, based on the OBMI data, that corresponds to a*

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<sup>34</sup> APC-00001071, slides 6-9 (OBMI Faults and Fractures).

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*seismic interpretation of a fault, then that might give you more confidence that what you are seeing seismically really is a fault and not some seismic artifact.”<sup>35</sup>* The OBMI data were presented in 2013 after completion of the Shen-2 well in March 2013.

73. There was continuing pressure to have one version of the map in August 2014, as evidenced in an email from Tim Trautman to Pat McGrievy.<sup>36</sup> In November 2014, an email from Patrick McGrievy to Darrell Hollek on the Shen-3 OWC wrote: “*It’s hard to go to partner meetings with a straight face and not acknowledge faulting when all of our partners externally share the same concerns.*”<sup>37</sup> In a “Shenandoah Project Overview” on May 13, 2015, McGrievy clearly documented the development teams’ dissent from the exploration team’s outdated maps (Figure 19). This dissent was never conveyed to the public. Instead, Anadarko presented overly optimistic interpretations of the Shen discovery without disclosing the dissent based on best practices and the scientific data.

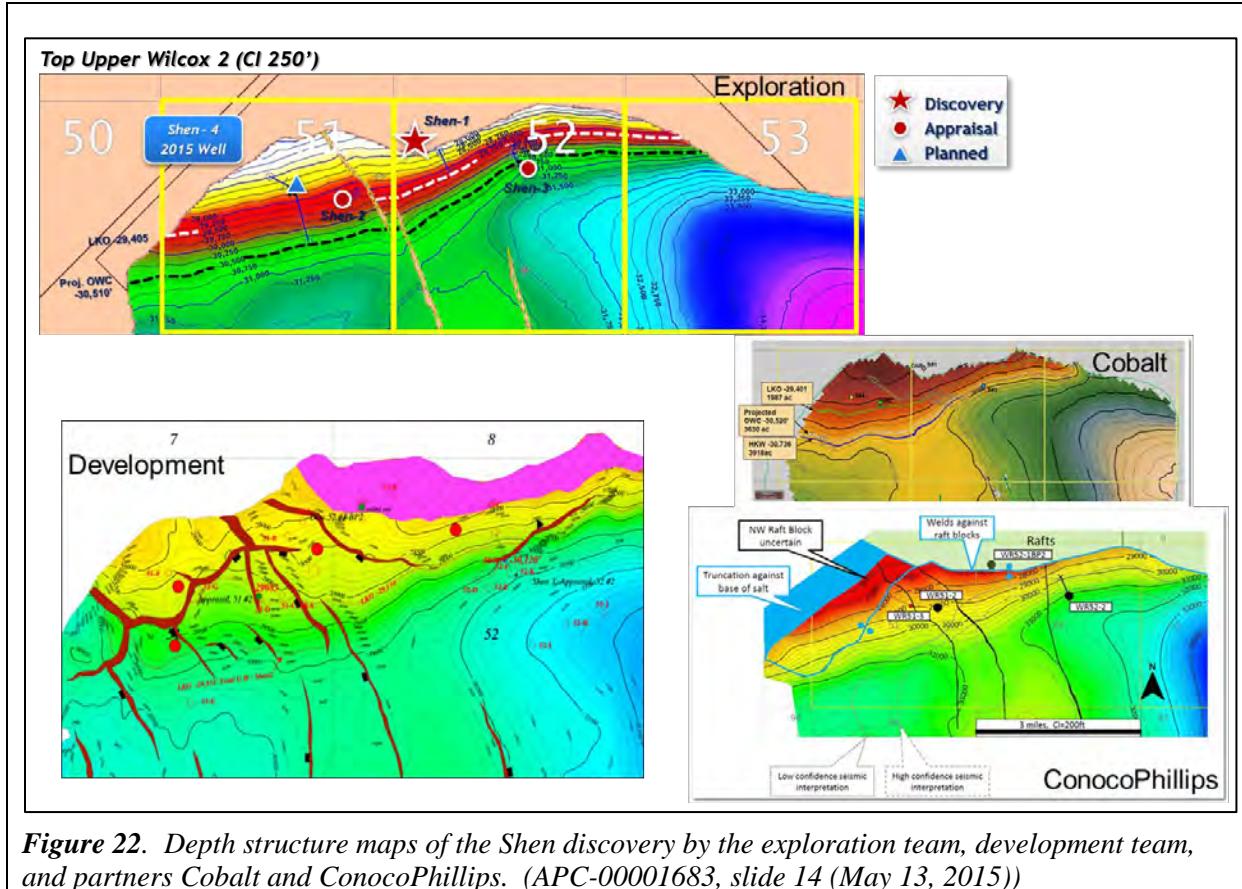
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<sup>35</sup> July 28, 2022 Deposition Transcript of Paul Chandler at 86:5-14.

<sup>36</sup> APC-00000770 (August 18, 2014 email from Tim Trautman to Pat McGrievy: “Make sure APC is presenting only one set of structure maps to partners.”).

<sup>37</sup> APC-00147547 (November 17, 2014).

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**Figure 22.** Depth structure maps of the Shen discovery by the exploration team, development team, and partners Cobalt and ConocoPhillips. (APC-00001683, slide 14 (May 13, 2015))

74. The implications of this omission are significant. First, the Shen-1 block is recognized as a separate fault block from Shen-2 and Shen-3. Shen-2 and Shen-3 are also in separate fault blocks. Anadarko management conveyed to the public that Shen-3 was a successful well when it discovered the water leg in the field. Shen-2 found only oil-saturated sands and did not penetrate the oil-water contact, what Anadarko personnel internally called the “worst case scenario.”<sup>38</sup> Mapping shows Shen-2 is in a separate fault block, implying a different pressure regime from Shen-3. It is incorrect to define an oil-water contact using pressures measured in the two wells separated by a fault and likely not in communication. Fault separation of the wells also raises the risk associated with producing the Shen resource. Additional wells are required to drain each compartment of its hydrocarbons.

<sup>38</sup> See July 28, 2022 Deposition Transcript of Paul Chandler at 276:10-13.

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75. One of the reasons exploration justified not mapping faults was due to poor seismic data, but other types of data also evidenced faulting, including OBMI data and MDT pressure data.

76. For example, a partner meeting<sup>39</sup> was held on August 18, 2014, to discuss faults identified by wireline logs, such as dipmeter and Oil-Based Micro Imaging (OBMI) logs. In Shen-1 BP2, four faults were identified with the strongest in the LWC sand, along with 51 fractures. None of these faults were identified in the seismic data. In Shen-2, three faults were identified and “*I fault found at the top of Wilcox (29,006' MD) corresponds to a seismic interpreted fault*” along with 6 fractures. These findings are significant because they established early recognition of faulting based on wellbore measurements and that most faults were not apparent in the seismic data, but were evident from other data available at the time. In my expert opinion, with seven faults identified in the first two wells, exploration’s insistence on an unfaulted structure map directly contradicts this evidence.

77. As to the MDT pressure data, results from Yucatan-1 and Yucatan-2 MDT pressures<sup>40</sup> shown in Figure 23 below provided information about the potential for faults to seal and cause compartmentalization in the Wilcox. First, Yucatan-1 MDT pressures in the LWA water zone are 180 psi lower than in the overlying oil zone, definitive evidence for an isolating fault intersected by the wellbore. Exploration geologist Ramsey concurred<sup>41</sup> that this pressure shift was fault related. Second, the Yucatan-1 water pressures below the fault are 40-60 psi higher than the pressure gradient established by the water-bearing zones in Yucatan-2, again proving fault compartmentalization laterally between the wells. In my expert opinion, with Yucatan-1 isolated from Yucatan-2 in the water leg, Shen pressures could follow a similar pattern and be isolated from

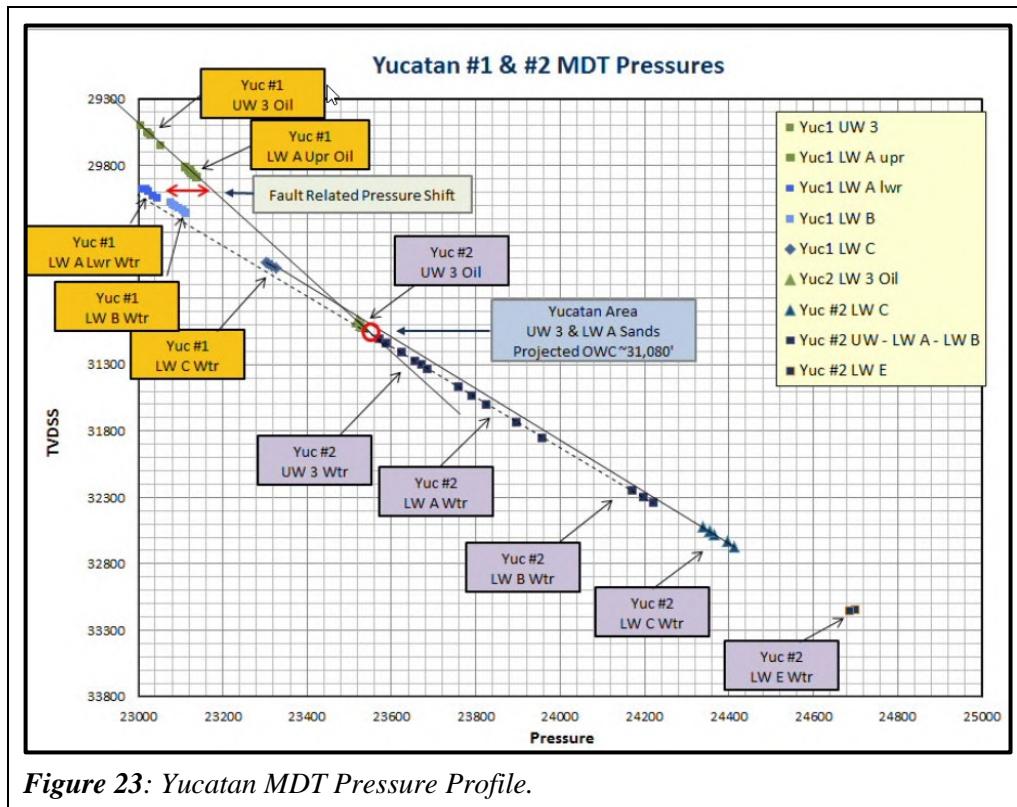
<sup>39</sup> APC-01677015, slides 9 & 14 (August 18, 2014).

<sup>40</sup> APC-00132687 (July 26, 2014) (plot on slide 6, cross-section slide 3).

<sup>41</sup> APC-00131414 (July 1, 2014).

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Shen wells. Therefore, trying to establish Shen OWCs from Yucatan-2 pressures was likely unreliable.



78. The cross-section from the same presentation shows the relative positions of the Yucatan and Shen wells in Figure 24 below.

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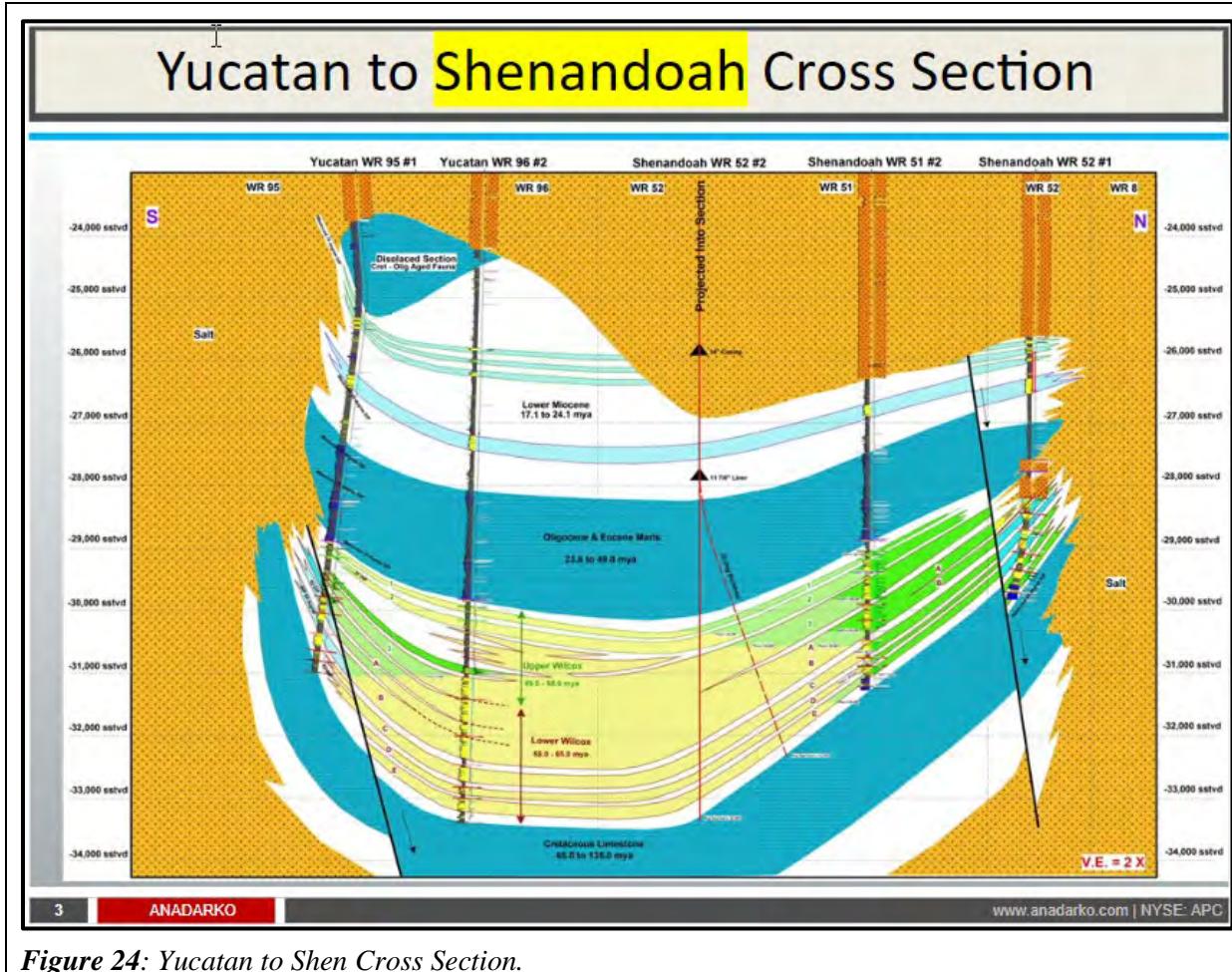


Figure 24: Yucatan to Shen Cross Section.

79. In addition, MDT surveys in Shen-1 indicated pressure compartmentalization vertically in the well. The oil samples from each zone varied in measured density and gas content, supporting a degree of vertical compartmentalization. MDT pressures in Shen-2, drilled in 2013, showed that the difference between Shen-1 and Shen-2 pressures in the Wilcox sands was about 180 – 250 psi, suggesting pressure compartmentalization. In Shen-2 (Figure 25), MDT surveys indicated five pressure gradients, and fluid densities in each compartment confirmed vertical stratal unit separation.<sup>42</sup> Such compartments may be stratigraphic. In other words, each sand is sealed by an

<sup>42</sup> APC-00001505, slides 20-22.

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overlying shale, so there is no vertical communication between sands. Faults also produce similar lateral effects.

80. Formation pressures are also used to infer the depth of oil-water contacts (OWC) when the pressure gradients of the oil column and underlying water column are known. The intersection of the oil column gradient and water column gradient is defined as the free-water level,<sup>43</sup> a close approximation to the OWC in moderate to high permeability rock. When no OWC is encountered in a well, the pressure gradient of the water column must be based on results from another downdip well. The critical issue is that the downdip water column must be in pressure continuity with the updip oil column to establish the OWC. Sealing faults between the water and oil leg prevent such pressure continuity; lateral continuity of the sands is also a critical factor in assessing whether a well provides useful information about the depth of OWC's.

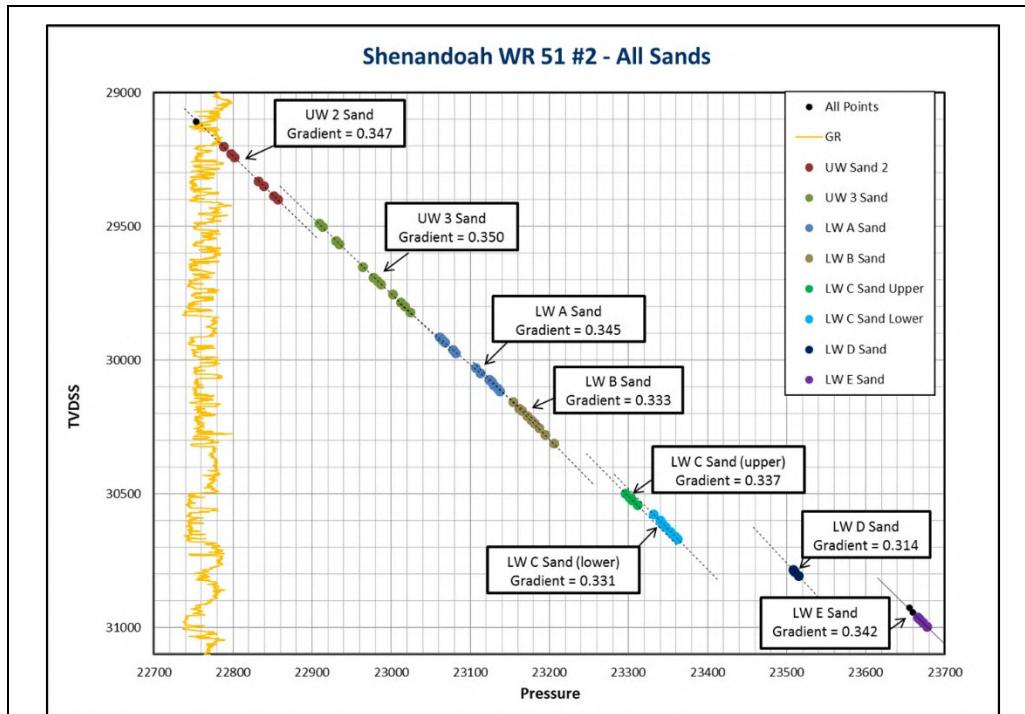
81. Figure 26 shows that the water leg of Shen-3 lined up with Shen-1, not Shen-2, and thus could not be used to project OWCs across the field based on Anadarko's Shen-2 field model. As Jake Ramsey, the geologist on the exploration team, admitted, such facts would not allow the projection of OWCs and suggested east-west compartmentalization at Shen.<sup>44</sup> Nevertheless, Anadarko told the public that Shen3 "*validate[d] the company's geologic models*" and "*enabled the projection of oil-water contacts based on pressure data and reduced the uncertainty of the resource range.*"

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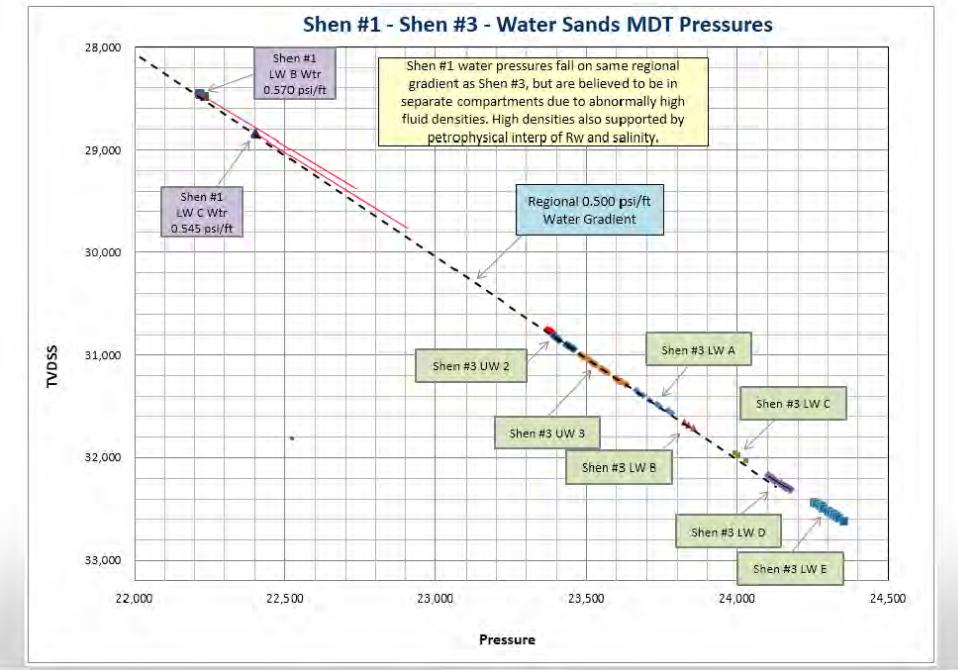
<sup>43</sup> The free water level is the depth at which the capillary pressure of the oil and water phase are equal. An OWC is defined as the depth at which the oil becomes the dominant flowing phase, which can occur above the free-water level in lower permeability formations.

<sup>44</sup> See APC-00013451; see also Figure 14B.

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**Figure 25.** Shen-2 pressure gradients in Wilcox sands. (APC-00001505, slide 21 (September 2013))



**Figure 26.** Shen#1-Shen#3 Water Sands MTD Pressures Plot. (Deposition Ex. 227, slide 28)

82. Shen-3 was positioned to test the position of the OWC but encountered no hydrocarbons. MDT pressure data were used to estimate OWCs in each sand. After Shen-3 found

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no hydrocarbons, the estimated OWC was placed at a subsea elevation of -30,510 ft across the entire structure. The lowest known oil (LKO) was about 1,105 ft (-29,045 ft subsea) above the projected OWC. The area above the projected OWC was used to calculate resource estimates, but as the development team geologist Paul Chandler observed, the “*o/w projection . . . is not definitive at all[l]*” but would require a “well to prove that” as “*Shen-3 has proved up very little.*”<sup>45</sup> A sealing fault between the Shen-2 and Shen-3 wells would make such an OWC projection invalid. The development team recognized the potential effect of such a fault in 2014 and found evidence that the exploration team had as well, as Chip Oudin observed in an email to the development team: “*You know, I just got into the Exploration Seisworks project across Shenandoah, and the main fault that potentially separates Shen-2 from the rest of the world (trending NW-SE, down-to-the-southwest, possibly intersecting Shen-2 at the bottom of the well) has already been mapped, at least twice. Someone needs to explain to me why it’s never shown up on any Expl [Exploration] maps.*”<sup>46</sup> Paul Chandler responded: “*The smoking gun??*”<sup>47</sup> The map presented in December 2014 (Fig. 13B) clearly shows this fault.

83. Likewise, by January 2015, the development team had mapped an east-west trending fault just north of Shen-3. Figure 27 shows a seismic line<sup>48</sup> running NNW to SSE through the Shen-3 location. Given the potential for this fault to seal, Shen-3 was not located effectively to be an

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<sup>45</sup> APC-00617135.

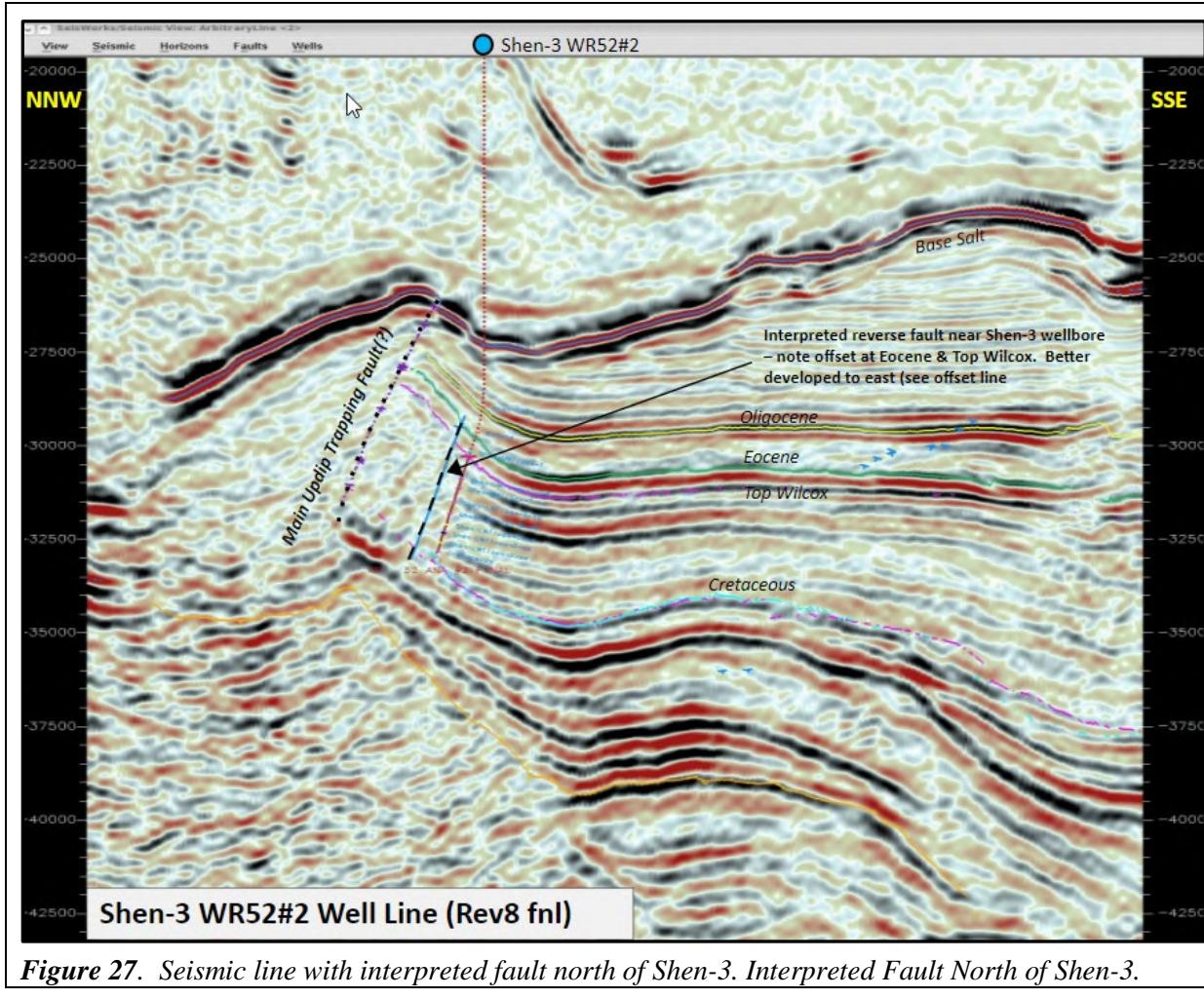
<sup>46</sup> APC-00852630 (November 25, 2014).

<sup>47</sup> *Id.*

<sup>48</sup> APC-00863560 (January 19, 2015).

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injection well and provide pressure maintenance to up-dip production wells to the north, as was understood internally at the Company at the time.<sup>49</sup>



*Figure 27. Seismic line with interpreted fault north of Shen-3. Interpreted Fault North of Shen-3.*

84. Chip Oudin cataloged several concerns about the project that he and development team members had expressed pre- and post-Shen-3 drilling in document APC-00020023, dated January 2015, summarized below and attached as Appendix III. The exploration team apparently ignored these concerns, which Oudin remarked remained salient even in 2017. In a 2017 email Oudin highlights this: “*Interesting reading from Jan. 2015, before Shen-4 was drilled. Funny to see old thoughts and concepts.*”

<sup>49</sup> See, e.g., July 28, 2022 Deposition Transcript of Paul Chandler at 147:20-150:11; APC-00001928.

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- (a) Is the current Seismic imaging sufficient to define the structure and the reservoir? Seismic depth processing had not accurately predicted the base of salt and had to be adjusted to the well data. Seismic evidence of a fault between the Yucatan structure and Shen suggested that more faults were likely.
- (b) Compartmentalization was mainly due to faulting, but also noted, from the well evidence that variable sand thicknesses imply the potential for stratigraphic pinchouts.
- (c) At least two fluid types were collected in Shen-1 and Shen-2. Although it was inferred from pressure data, no oil-water contact was penetrated by the first three wells except for the Lower Wilcox A and C in Shen-1.

85. Seismic interpretation differences were addressed in maps included in the McGrievy presentation dated May 13, 2015. Faults were noted in the Shen-3 BP-1 core, confirming potential compartmentalization. Also, in the presentation, MDT interpretations suggested that the accumulation was divided into an East and West block. September 9, 2015, Shen project Update & Preliminary Budget Review<sup>50</sup> includes the recognition that there was a potential asphaltene issue that could affect production, documented differences in fault interpretation between exploration and development, and indicated the reduced area of hydrocarbon accumulation from the results of Shen-4. MMRA interpretation based on this division suggested a mean resource of about 400 MMBOE.

86. Additional seismic mapping and the drilling of Shen-4 revealed small-scale faulting in the Shen geologic structure. Geophysical mapping (Figure 28) noted several faults oriented NW-SE closely related to the lineations in the dip attribute map (coherence map), Figure 22, confirming that the “lineations” were faults as recognized by the development team. The results of Shen-4 found significant evidence for faults summarized by Paul Chandler in (APC-01180902, slide 48).

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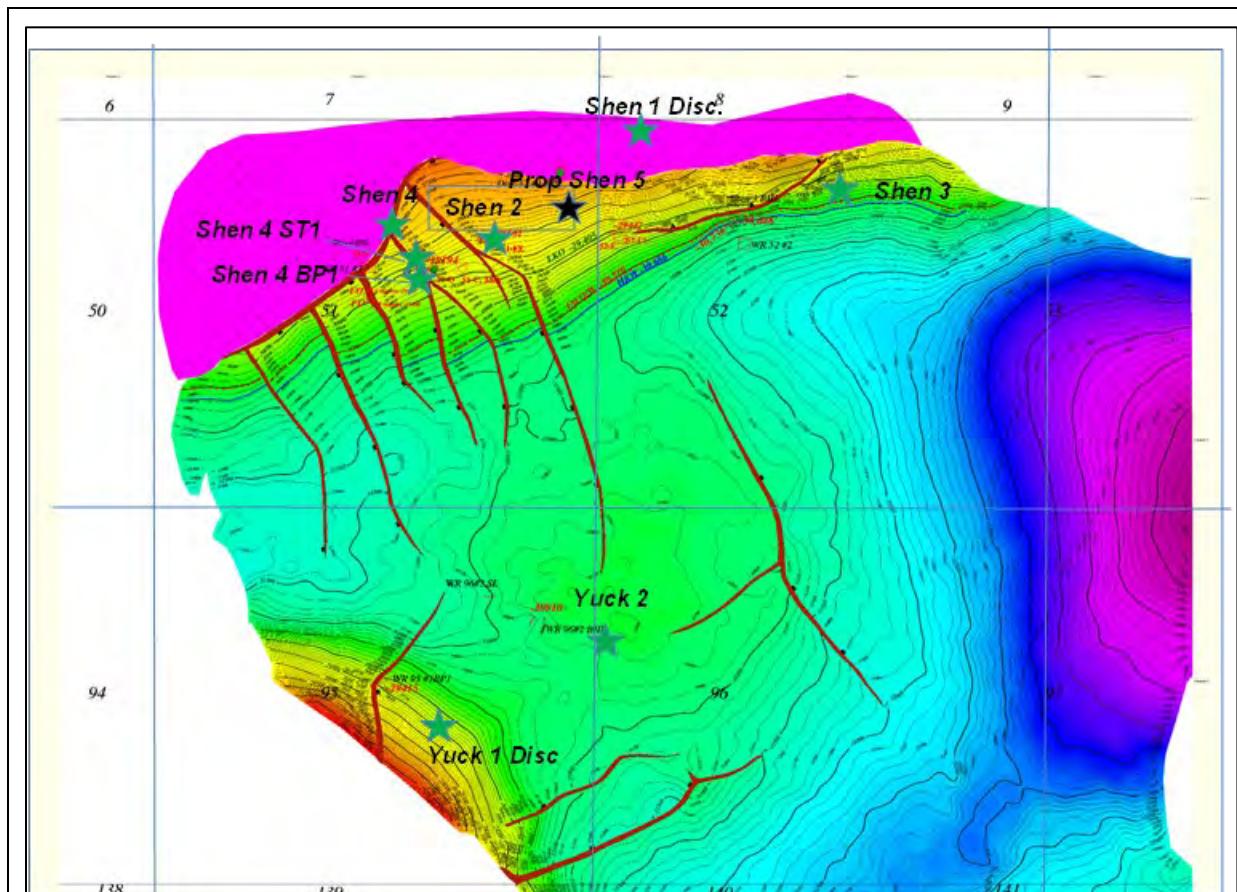
<sup>50</sup> APC-00193551.

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These faults are present in the March 2016 Paul Chandler PowerPoint cross-section shown in Figure 29. The list below highlights the evidence of faulting.

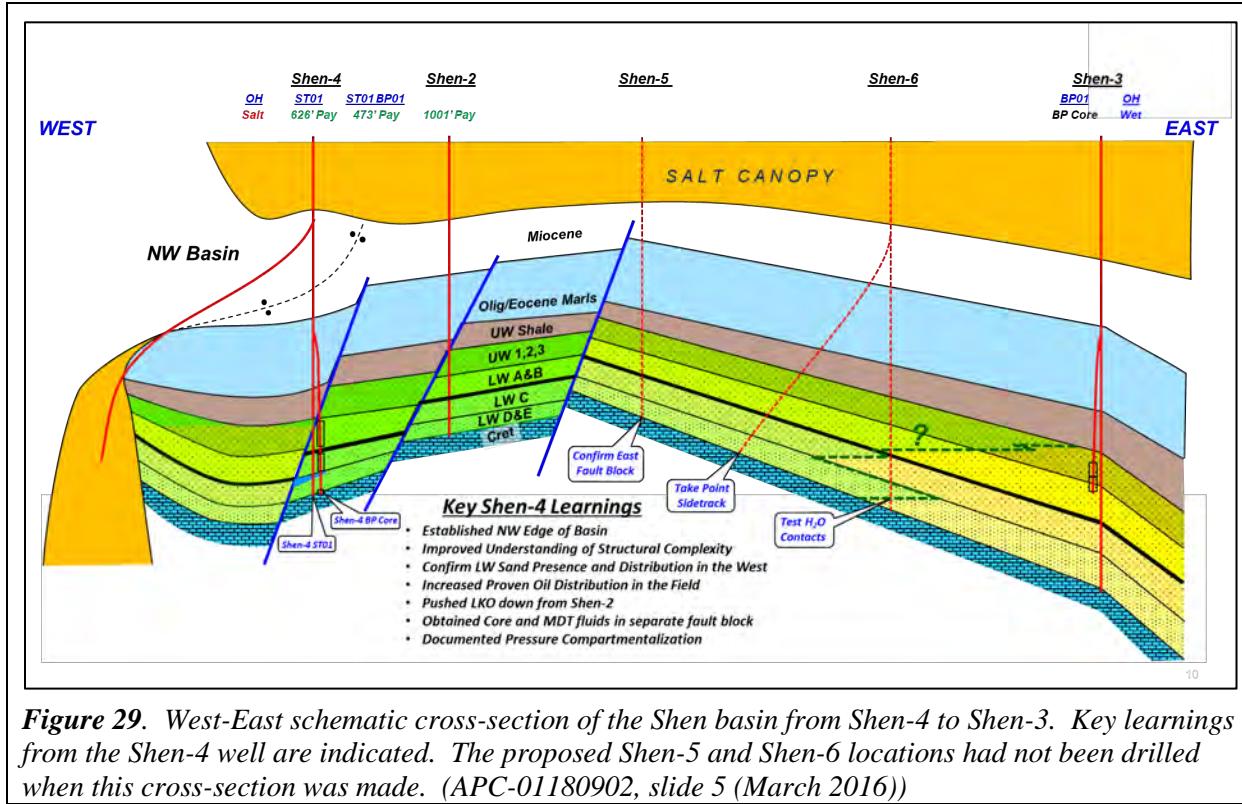
- Faults interpreted from wireline logs: NGI, RT Scanner, Density Image, BARS.
- Paleontology data indicated the Upper Wilcox Sands in Shen-2 are missing in Shen-4.
- Lower Wilcox Sands correlated to Shen-2, Upper Wilcox Sands missing.
- Lower Wilcox Sand pressures were different between Shen-4 ST and Shen-2.
- Slickenslides in the cuttings and cores indicated faults.
- Deformation bands were identified in the core.
- The fault zone was not a single plane and could be a cluster of parallel faults or a zone of crushed rock along a single fault.

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**Figure 28.** Seismic map on top of the Upper Wilcox 2 sand in the northern Shen basin. Green stars are the locations of drilled wells. The black star indicates the location of the proposed Shen-5 well. (APC-01180902, slide 5 (March 2016, Paul Chandler PowerPoint))

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**Figure 29.** West-East schematic cross-section of the Shen basin from Shen-4 to Shen-3. Key learnings from the Shen-4 well are indicated. The proposed Shen-5 and Shen-6 locations had not been drilled when this cross-section was made. (APC-01180902, slide 5 (March 2016))

87. Indeed, Paul Chandler observed that the fact Shen-4 potentially eliminated the entire Upper Wilcox in the reserve model was a “huge implication at stake.”<sup>51</sup>

88. The fault and deformation bands identified in Shen-4 and the mapping further confirmed the likely compartmentalization of the Upper Wilcox suggested by previous wells. The development team assembled evidence that the Shen structure was not a simple homoclinal structure but that the structure was compartmentalized. These compartments or barriers would likely reduce hydrocarbon recovery factors.

89. The potential for North-South faulting impacted the uncertainty in resource size because the Shen structure is elongated along an East-West axis with sealing North-South faulting, each potential fault block would need to be tested, and extrapolations of oil and aquifer gradients located miles apart would be invalid to determine the depth of OWC’s. Figures 30, 31, and 32

<sup>51</sup> July 28, 2022 Deposition Transcript of Paul Chandler at 190:1-194:23; APC-00054087.

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resulted from interpreting 2016 reprocessed seismic data and clearly show fault compartmentalization.

90. The impact of flow barriers increased in importance with the finding that asphaltene dropout pressures (“AOP”s) were relatively high.<sup>52</sup> Wellbore pressure maintenance is required by substantial aquifer support or water injection to prevent the premature dropout of asphaltenes in the reservoir. Asphaltenes negatively impact crude oil production because they may precipitate out in the reservoir, seriously decreasing the production rate.

91. The combination of fault compartments and lower hydrocarbon recovery seriously impacts ultimate hydrocarbon recovery. The lower hydrocarbon recovery is caused because of the dropout of asphaltenes in the reservoir as pressures drop during production. Additionally, faults cut out significant portions of the Wilcox.

92. Completed in August 2016, Shen-5 drilled in what Anadarko and partners considered the eastern block (Figure 32). The well drilled through the expected fault, confirming it to be in the eastern block. The well was cored, and well logs determined over 1,040 ft of net hydrocarbon pay in the Upper and Lower Wilcox zones. Pressure data indicated varying fluid composition and vertical pressure variation, similar to previous wells. Additionally, two tar zones were noted in the Shen-5 Lower Wilcox C zone. In total, there was about 22 feet of tar. Such tars form by water-washing and biodegradation in the reservoir and form flow barriers. Tars were also noted in the Shen-4 ST2, a negative fact that Anadarko kept quiet about, even with partners.<sup>53</sup> Anadarko’s statements about Shen5 were in terms of the feet of pay, focusing on the magnitude of pay, and ignored compartmentalization and production issues that typically decrease resources per well and production.

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<sup>52</sup> APC-00193551, slide 3.

<sup>53</sup> APC-00253714.

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93. Shen-6 followed Shen-5 and encountered no hydrocarbons; it was a wet well; the sidetrack targeting OWC's downdip from Shen-5 was wet and in a different fault block from Shen-5. The highest known water in the Lower Wilcox E was at -31,319<sup>54</sup> ft subsea, and the eastern OWC was raised to -30,400 ft based on pressure data. With the drilling of Shen-5 and Shen-6, it was clear that each fault compartment had separate OWC's for each of the Wilcox zones (Figure 30). Following Shen-6, Anadarko recognized several remaining uncertainties. The location of the salt weld and the trap affected the structure's northern and western edges. Additionally, there was still some uncertainty in the OWC and how Shen-1 fit into the structural picture.

94. The 2016 reprocessed seismic solved the Shen-1 structural issue, indicating it was a rafted or trapped sedimentary block with the trap for the Shen-1 sands being the updip weld (Figure 27). It also clearly defined the faults that had been the focus of the exploration team/development team disagreement, as shown in Figure 29. Wireline logs, including OBMI, indications of fractures, faults, and deformation bands in cores, and seismic confirm the field's faults and potential flow barriers, compartmentalizing the field and significantly reducing the resource potential from the original exploration team estimates. However, a map in a March 2016 presentation, "Shenandoah: An Appraisal Update"<sup>55</sup> (Figure 28), indicated a likely reverse fault just north of Shen-3. With Anadarko's focus on compartmentalization in the western part of the structure and the Shen-3 dry hole, the Easternmost fault block still showed no faults.<sup>56</sup> Anadarko wrote off the Shen field in its entirety after the close of the market on May 2, 2017.

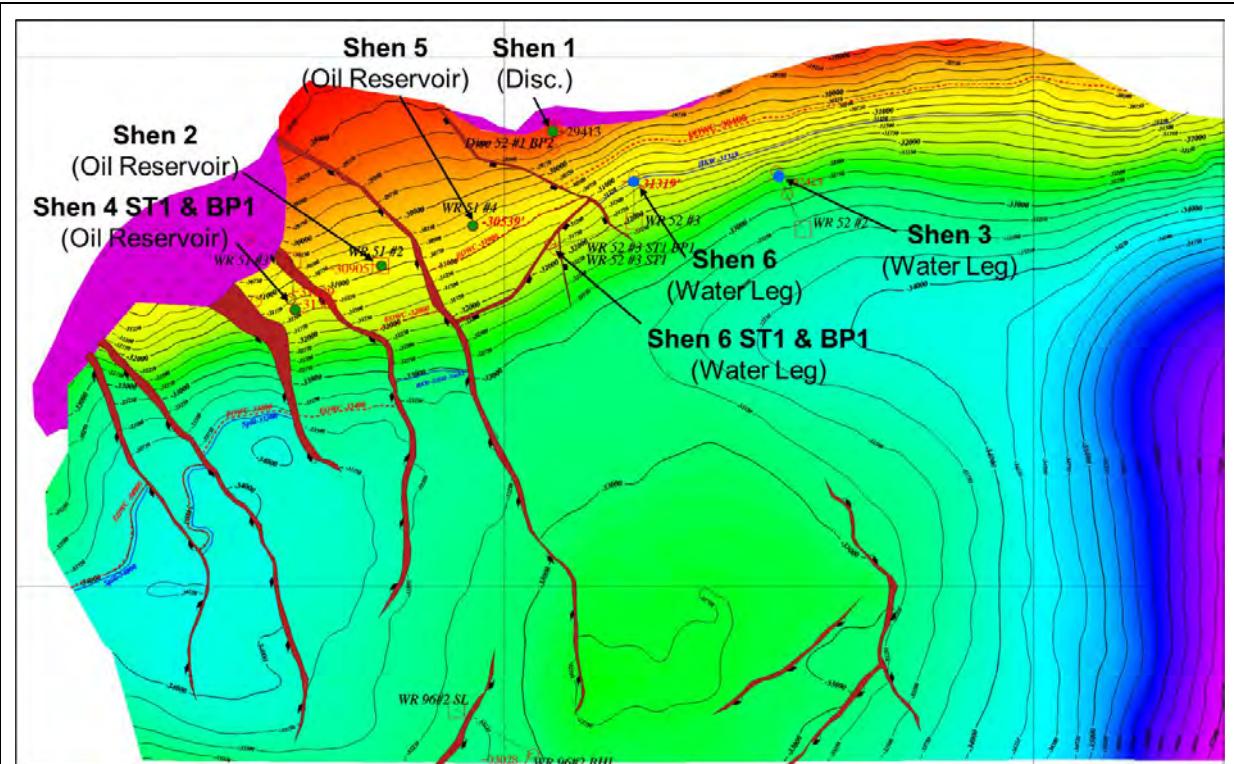
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<sup>54</sup> APC-01286239, slide 19 (June 2017).

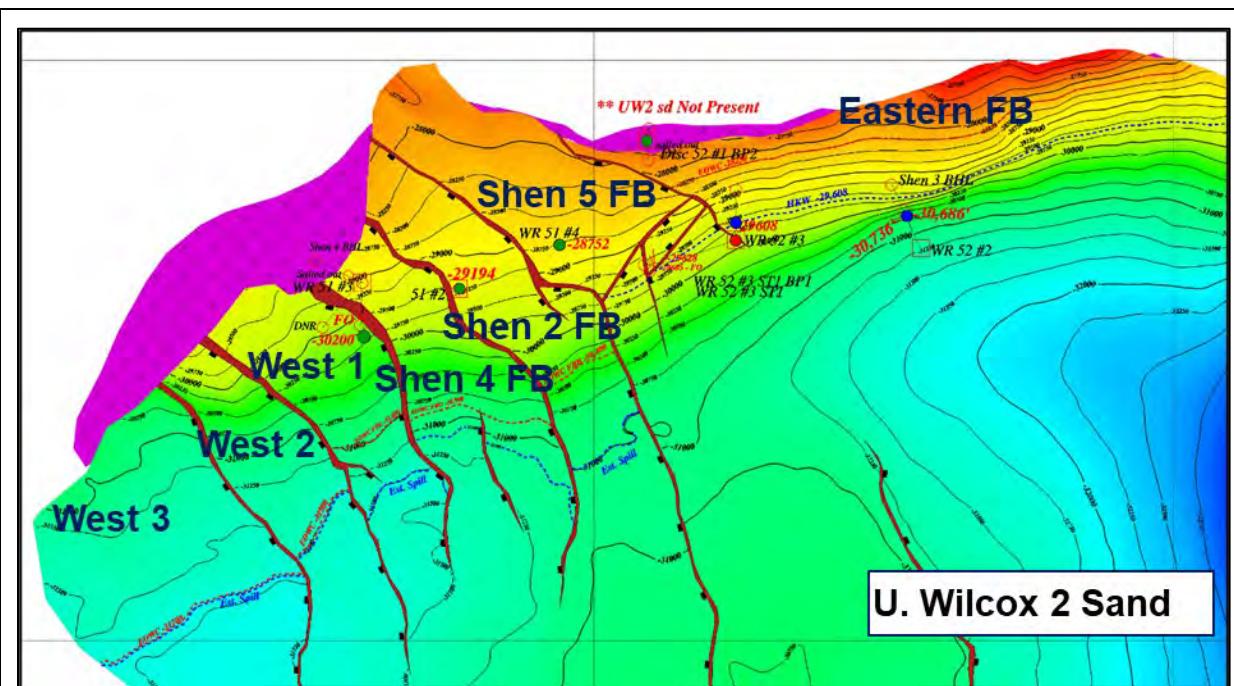
<sup>55</sup> APC-01180902.

<sup>56</sup> APC-00091671, slide 20 (April 4, 2017).

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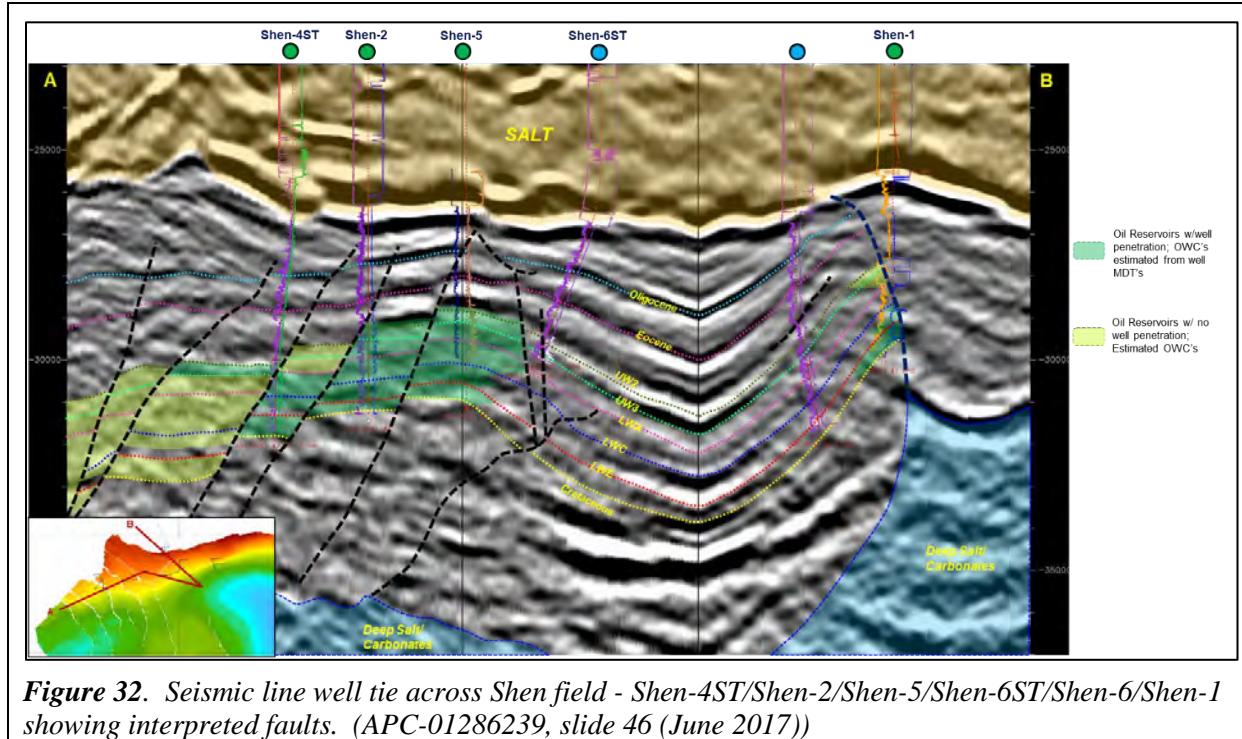


**Figure 30.** Depth structure map of the Lower Wilcox E zone after 2016 reprocessing. Note the many faults and OWCs for the individual compartments. (APC-01286239, slide 19 (June 2017))



**Figure 31.** Depth structure map of the Upper Wilcox 2 sand interpreted from the 2016 reprocessed seismic. (APC-021286239, slide 49 (June 2017))

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**Figure 32.** Seismic line well tie across Shen field - Shen-4ST/Shen-2/Shen-5/Shen-6ST/Shen-6/Shen-1 showing interpreted faults. (APC-01286239, slide 46 (June 2017))

## X. ADDITIONAL RESERVOIR ISSUES

95. Anadarko held out Shen as having excellent reservoir and fluid qualities to the public. For example, at a May 24, 2016, UBS Global Oil and Gas Conference (“UBS Conference”), Anadarko’s representative Shandell Szabo described Shen as having “*Miocene-like properties, which means that the reservoir quality is very good. You’re looking at porosities of up to 25% here. You’re looking at permeabilities in the 100 millidarcy range. Some of the individual sands see 300, 400 millidarcies perm. And then the last thing you look at is the fluid property, since it’s very light oil out here. So from the overall discovery, it’s got everything that you’re looking for.*”<sup>57</sup> But the data showed the average porosity for Shen-2, Shen-3, and Shen-4 ST-1 was 20%.<sup>58</sup> Further, as discussed above, Shen posed serious challenges as to tar and AOP.

<sup>57</sup> May 24, 2016, Transcript of the Anadarko Petroleum Corp at UBS Global Oil and Gas Conference

<sup>58</sup> APC-00001146, slide 10, APC-00065685, slide 9, APC-00592612, slide 9.

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96. As mentioned above, my report uses the term “resource” to describe Shen in this case rather than “reserves” because the Shen wells with oil and natural gas indications were not flow tested and could not be classified as “proven” oil and gas reserves during the Class Period. Yet at the same UBS Conference, Ms. Szabo implied that there are proven and probable reserves in the Shen field: “[Y]ou can see the number five well up there on that cross-section, so you can see that lighter green color – we’re going to be able to turn that dark green. So the lighter green on there is the **probable**, and the darker green is the **proven**, and so we’re going to have the ability for that large area over there to go ahead and say, yes, that’s **proven**, so that’s tremendous for us.”<sup>59</sup> Under the SPE reserves classification, **Proven** (on production – 1P), **Probable** (under development-2P), and **Possible** (planned for development-3P) refer to Discovered Commercial Reserves. On the other hand, resources are referred to as **Contingent Resources**, or Discovered Resources (development-pending, on hold, or not viable), and **Prospective Resources** (undiscovered). The use of **Proven** and **Probable** in the statement suggests that wells have flowed, been tested, and are under development, which overstates the confidence in the resource potential of Shen.

## XI. SUMMARY AND CONCLUSION

97. Known risks and uncertainties about Shen leading up to and during the Class Period contradicted Anadarko’s rosy public statements, including significant evidence of compartmentalization and faulting, a shrinking resource, and other key risks. Exploration mapping of Shen with no faults and vigorous dissent from the pre-development team were red flags for management. Yet, even after the Risk Consistency Team (“RCT”) internal audit resulted in a significant downward adjustment to Shen’s resource size and increased resource uncertainty (Fig. 2), exploration continued to use the larger resource estimates. Additionally, the Company failed to

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<sup>59</sup> May 24, 2016, Transcript of the Anadarko Petroleum Corp at UBS Global Oil and Gas Conference (emphasis added).

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disclose the significant reduction in the resource size over time. In the end, Anadarko abandoned Shen as non-commercial after management had touted it to the public as one of the largest and most valuable discoveries in the Deep Gulf of Mexico.

*Robert K. Merrill*

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**XII. GLOSSARY OF OILFIELD TERMS**

This report contains many technical terms and technical acronyms. A glossary of terms is provided. The glossary is compiled from several online sources, including the Schlumberger resource library.

**Allochthonous**

Sediment or rock that originated at a distance from its present position due generally to faulting or salt flow.

**Appraisal Well**

A well drilled as part of an appraisal drilling program to determine the physical extent, reserves, and likely production rate of a field.

**Asphaltene**

Asphaltenes are the dissolved solids components of crude oils. Asphaltenes negatively impact the economic value of crude oil and may precipitate out in the reservoir, seriously decreasing the reservoir permeability and the production rate.

**Barrel of oil equivalent (BOE)**

A measure used to aggregate oil and gas resources or production, with one BOE being approximately equal to 6,000 cubic feet of natural gas.

**Biodegradation**

Bacterial action impacting oil properties in the reservoir leading to a systematic decrease in paraffin and an increase in oil density, sulfur content, acidity, and viscosity.

Biodegradation is often accompanied by water-washing.

**BCF**

One billion cubic feet of natural gas.

**Bypass well**

It is typically drilled to acquire a core near an existing borehole along a wellbore path adjacent to a previously existing wellbore's bottomhole. The bypass well is drilled as a deviation from the original wellbore.

**Coherence**

Coherence is a measure of similarity between waveforms or traces in seismic volumes. Coherence (also semblance or similarity) is designed to emphasize discontinuous events like faults in structural interpretation.

**Coil Seismic**

"Coil shooting" is a single-vessel method developed by WesternGeco for acquiring seismic data over a wide range of azimuths to improve imaging of complex geology.

**Commercial Field**

An oil and/or gas field judged to be capable of being profitable by producing sufficient net income to recover all development capital and operating costs.

**Depth Migration**

A step in seismic processing in which reflections in seismic data are moved to their correct locations in space, including position relative to shot points, in areas where there

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are significant and rapid lateral or vertical changes in velocity that distort the time-image. Seismic data are acquired in time for a reflection to travel to a reflecting interface and back to the surface. The travel time is multiplied by the seismic velocity of the rock through which the signal travels to convert travel time to depth. This conversion requires accurate knowledge of vertical and horizontal seismic velocity variations.

Downdip

Located down the slope of a dipping plane or surface. In a dipping (not flat-lying) hydrocarbon reservoir that contains gas, oil and water, the gas is updip, the gas-oil contact is downdip from the gas, and the oil-water contact is still farther downdip.

Dry Hole

A well incapable of economically producing saleable hydrocarbons in sufficient quantities to justify commercial exploitation. Often referred to as “wet” if only water is encountered.

Estimated Ultimate Recovery (EUR)

The sum of reserves remaining as of a given date and cumulative production as of that date.

Exploratory Well

A well drilled to find a new field or a new reservoir in a field previously found to be productive of oil or gas in another reservoir.

Fault

A fault is a planar fracture or discontinuity in a volume of rock across which there has been significant displacement as a result of rock-mass movements. Movement along the fault may crush the rock along the fault plane, decreasing permeability across the fault and preventing fluid flow from one side of the fault to the other.

Field

An area consisting of a single hydrocarbon reservoir or multiple geologically related reservoirs all grouped on or related to the same individual geological structure or stratigraphic condition.

Homocline

A geological structure in which the layers of a sequence of rock strata dip uniformly in a single direction having the same general inclination in terms of direction and angle.

Isopach

Isopachs are contour lines of equal sediment thickness over an area.

Lead

An area where the major components of the hydrocarbon system have sufficient probabilities of success in contributing to an economic accumulation of hydrocarbons.

LOE

Lease Operating Expense (LOE) refers to the recurring costs of operating the wells and equipment.

LKO

Lowest Known Oil is the structural occurrence of hydrocarbons and is the lower proved limit of oil occurrence.

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MCF

“One thousand standard cubic feet of natural gas. In the United States, standard conditions are defined as gas at 14.7 psia and 60 F.”

MDT

Modular Formation Dynamics Tester – Schlumberger logging tool to collect pressure and fluid data at various depths in a wellbore.

Miocene Formation

Sediments deposited during the Miocene Epoch, between 23.03 and 5.333 million years ago (Ma). An epoch is a unit of geological time during which a rock series is deposited.

MMBOE

Million Barrels of Oil Equivalent is a measure of both gas and oil. Gas is typically converted based on 6000 cubic feet of gas (MCFG) to 1 barrel of oil.

MMRA

Multi-Mode Resource Assessment Tool. A probabilistic resource assessment software developed by Rose & Associates in common industry use for over 30 years.

Net Pay

Net Pay is a subinterval within a gross thickness interval that comprises net reservoir rock with adequate porosity, permeability, and hydrocarbon saturation to potentially produce commercial hydrocarbons. In other words, net hydrocarbon saturated reservoir rock.

OBMI-Oil-based microimager

The OBMI is a wireline tool for boreholes with oil-based mud that uses microresistivity to image the character of the rocks adjacent to the borehole. It can detect features as small as 0.4 inches.

Operator

The entity responsible for managing operations in a field or undeveloped acreage position.

OWC

Oil-Water Contact.

Permeability

The permeability of a rock is the measure of the resistance to fluid flow through the rock. High permeability means fluid passes through the rock easily.

PIR

Profit investment ratio (PIR), describes an index that represents the relationship between the costs and benefits of a proposed project. Also referred to as the Profitability Index (PI) or Value investment Ratio (VIR).

Play

An area in which hydrocarbon accumulations or prospects with similar characteristics occur, such as the Lower Tertiary play in the deepwater Gulf of Mexico or the Marcellus play in the eastern United States. A group of prospects of a similar nature constitutes a play.

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**Porosity**

The measure of a rock's ability to hold a fluid. Porosity is normally expressed as a percentage of the total rock volume or that area that is taken up by pore space.

**Prospect**

An area of exploration in which hydrocarbons have been predicted to exist in economic quantity. A prospect is commonly an anomaly, such as a geologic structure or a seismic amplitude anomaly that is recommended by explorationists for drilling a well.

Justification for drilling a prospect is made by assembling evidence for an active petroleum system or reasonable probability of encountering reservoir-quality rock, a trap of sufficient size, adequate sealing rock, and appropriate conditions for generation and migration of hydrocarbons to fill the trap. A single drilling location is also called a prospect, but the term is more properly used in the context of exploration.

**Probabilistic resource assessment**

A systematic and comprehensive methodology to evaluate risk. Risk is characterized by two quantities: 1) the magnitude (severity) of the possible adverse consequence(s), and 2) the likelihood (probability) of occurrence of each consequence.

**RSWC**

**Rotary Sidewall Core:** Rotary sidewall cores are recovered with miniature diamond-tipped drill bits that preserve the rock pore structure when they cut a round plug of the formation directly from the borehole wall preserving the structure and porosity of the formation. They are a faster, cost-effective alternative to conventional cores.

**RCT**

**Risk Consistency Team**, an Anadarko name for the “Peer Review Team.” The Peer Review is an opportunity to present ideas to a group of peers to receive critical feedback on one’s interpretation and data.

**Recovery Factor**

The recoverable amount of hydrocarbon initially in place, normally expressed as a percentage.

**Reserves**

Estimated remaining quantities of oil and gas and related substances anticipated to be economically producible, as of a given date, by application of development projects to known accumulations. In addition, there must exist, or there must be a reasonable expectation that there will exist, the legal right to produce or a revenue interest in production, installed means of delivering oil and gas or related substances to market, and all permits and financing required to implement the project. Generally classified as 1P, on production, 2P, under development, or 3P, planned for development.

**Reservoir**

A porous and permeable underground formation containing a natural accumulation of producible oil and/or gas that is confined by impermeable rock or water barriers and is individual and separate from other reservoirs.

**Reservoir quality**

A prediction of the likelihood of a rock to yield commercial quantities of hydrocarbons. Reservoir quality is a geologic, engineering, and economic assessment of a resource, its

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reserves, and its producibility. The term includes the following factors: volume of oil or gas in place, organic content (TOC), thermal maturity, effective porosity, fluid saturations – oil, gas, and water, reservoir thickness, and intrinsic permeability.

**Resources**

Quantities of oil and gas estimated to exist in naturally occurring accumulations. A portion of the resources may be estimated to be recoverable, and another portion may be considered unrecoverable. Resources include both discovered and undiscovered accumulations. Resources are classified as Contingent Resources, development-pending, development on hold, or development not presently viable, or Prospective Resources of a Prospect, Lead, or Play.

**Seismic imaging**

Seismic imaging uses acoustic waves to create images of the earth by analyzing vibrations from those waves.

**Sidetrack well**

A wellbore segment extending from an existing wellbore intersection along a wellbore path to a different wellbore bottomhole location from that of the previously existing wellbore.

**Slickensides**

Slickensides are striations on a rock created by the friction between rocks when they slide past each other along a fault plane where rocks under stress slide against each other.

**Spar**

A marine floating oil and gas platform consisting of a large-diameter, vertical buoyant cylinder supporting a deck. The development program proposed by Anadarko uses two spars; thus, it is referred to as a two-spar development.

**Stratigraphic variability**

Variation in rock units displayed as visible layering caused by physical contrasts in rock type (lithology), *e.g.*, sand and shale. This variation can occur vertically as layering (bedding) or laterally, reflected by lateral thinning or by changes in the rock type due to changes in the depositional environment.

**Turbidite**

Turbidites are sea-bottom deposits formed by massive slope failures. Rivers flowing into the ocean deposit sediments on the continental shelf and slope. When sediment rates are high, the slope becomes oversteepened and fail. The slopes fail in response to excessive sedimentation load, and sometimes earthquake shaking, sending the sediments sliding down to the ocean bottom to create a turbidite.

**Updip**

Located up the slope of a dipping plane or surface. In a dipping (not flat-lying) hydrocarbon reservoir that contains gas, oil, and water, the gas is updip, the gas-oil contact is downdip from the gas, and the oil-water contact is still farther downdip.

**Water-washing**

The in-situ process of stripping the more soluble hydrocarbons from a gas or oil accumulation via dissolution in the associated aquifer, often accompanies biodegradation.

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**WAZ Seismic**

Wide azimuth (WAZ) describes a seismic data acquisition technique with a wide distribution of source-receiver azimuths.

**Weld**

A salt weld is a surface or thin zone marking a zone from which all salt has been removed  
– weld results from complete or nearly complete salt removal by creep or dissolution.

**Well log**

A geophysical tool recording the technical details of the geological strata penetrated (*e.g.*, resistivity, sonic, gamma-ray, density, and neutron).

**Wellbore**

The hole drilled by a drilling rig to explore for or develop oil and/or natural gas, also referred to as a well or borehole.

**Wilcox**

The Wilcox Group is an important geologic group in the Gulf of Mexico Basin and surrounding onshore areas from Mexico and Texas to Louisiana and Alabama. The group ranges in age from Paleocene to Eocene. In the Gulf of Mexico Basin, the geologic unit is divided into Lower, Middle, and Upper Wilcox.

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**APPENDIX I****Professional Qualifications of Expert Robert Merrill, Ph.D.**

<b>Catheart Energy, Inc., Sugar Land, TX</b>	<b>2005 – Present</b>
<b><i>President</i></b>	
Consulting practice focused on evaluating exploration portfolios and geologic risk analysis. Develop independent oil and gas opportunities in conventional and unconventional reservoir plays in the U.S. and Canada. Teaching workshops on sample description.	
<b>Samson Companies, Tulsa, OK</b>	<b>2000 – 2005</b>
<b><i>Technical Manager of Geology</i></b>	
Managed geological quality assurance on all exploration and development projects, mentoring geology professionals and maintaining geological staff levels. Responsible for geological risk and reserves aspects of portfolio and New Ventures activity in Samson's exploration program.	
<b>Unocal Corporation, Sugar Land, TX</b>	<b>1989 – 2000</b>
<b><i>Chief Geologist Spirit Energy Division</i></b>	1997 – 2000
Managed geological quality assurance on all exploration and development projects in a \$600 million capital program, mentoring geology professionals and ensuring training needs were identified and met. Responsible for overseeing geotechnical specialties for the division and providing oversight of technical I.T. budget.	
<b><i>Exploration Geologist,</i></b>	1996 – 2000
Identified and evaluated three potential investment opportunities in Kazakhstan and was a negotiation team member.	
<b><i>Technical Assistant Vice President, Worldwide Exploration</i></b>	1994 – 1996
Prepared portfolio analysis and technical analysis of a \$200 million worldwide exploration portfolio.	
<b><i>Exploration Geologist,</i></b>	1992 – 1994
Studied worldwide basins for new venture potential.	
<b><i>Exploration Geologist, Oklahoma City, OK</i></b>	1989 – 1992
Generating prospects in conventional and unconventional hydrocarbon systems in Rocky Mountain basins.	
<b>OXY USA, Inc.</b>	<b>1987 - 1989</b>
<b><i>Exploration Geologist, Oklahoma City, OK</i></b>	1987 - 1989
Generated prospects, evaluated, and supervised wildcat drilling in the Arkoma Basin, Midland Basin, Delaware Basin, Paradox Basin, and Denver-Julesburg Basin.	
<b>Cities Service Oil and Gas Corp. Denver, CO.</b>	<b>1974 - 1987</b>
<b><i>Exploration Geologist,</i></b>	1981- 1987
Generated prospects in the Wyoming/Utah/Idaho Overthrust Belt, Utah Basin and Range, Paradox Basin, Green River Basin, and Denver-Julesburg Basin.	
<b><i>Technical Assistant to the Vice President, Western International, Tulsa, OK.</i></b>	1978- 1981
Provided technical analysis for management of a \$70 million budget covering ongoing, new, and proposed projects in the Western Hemisphere outside of the United States.	
<b><i>Staff Geologist, Tulsa, OK.</i></b>	1974 - 1978
Conducted Regional geologic studies using available geological and geophysical data (satellite imagery, organic geochemistry, structure, stratigraphy, petrography, seismic, gravity, and magnetics).	
<b>Arizona State University</b>	<b>1973 - 1974</b>
<b><i>Instructor of Geology, Tempe, AZ</i></b>	1973 – 1974
Planned and conducted introductory and advanced courses in Environmental Geology, Structural Geology, Physical Geology, and Historical Geology.	

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<b>American Stratigraphic Company</b>	<b>1969 - 1973</b>
<b>Consulting Stratigrapher, Tempe, AZ</b>	1970 - 1973
Described cuttings and cores and constructed stratigraphic logs of hydrocarbon tests in Arizona and Alaska.	
<b>Stratigrapher, Denver, CO</b>	1969 – 1970
Logged cuttings and cores and constructed stratigraphic logs of hydrocarbon tests in the Rocky Mountains, Alaska, and Honduras.	

**Education**

**Ph.D. Geology, 1974**, Arizona State University  
**M.S. Geology, 1970**, Arizona State University  
**B.A. Geology, 1967**, Colby College

**Accreditations**

Wyoming Board of Professional Geologists – PG 1564

**Professional Memberships and Activities**

**American Institute of Professional Geologists** – Held both local and national offices, including National secretary, 1992 – 1993 and National President, 1996; Served on and chaired many committees, including National and International Affairs Committee – 1993 – 1994; Martin C. Van Couvering Award, 1997

**American Association of Petroleum Geologists** – General Technical Program Chair – 2006 Annual Meeting; Co-Chair Giant Fields of the Decade 1990 – 2000; Treatise of Petroleum Geology Committee 1990 – 1995; Co-editor Giant Fields of the Decade 2000-2010; Editor GCAGS Journal 2017; Editor AAPG Bulletin, 2019-2022

**Society of Exploration Geophysicists** – Geoscientists without Borders Committee 2015 – present

**Geological Society of America** – Fellow

**The Geological Society of London** – Fellow

**American Geological Institute** – Committee on Human Resources 1998 – 1999; Chairman, National Geoscience Data Repository System Steering Committee 1998 – 2000

**Publications**

Numerous publications and internal company reports on regional tectonics, regional petroleum potential, oil and gas geochemistry, and petroleum reserves analysis. The most recent are listed below. Also, I have presented multiple papers on regional exploration potential, exploration and development of fractured reservoirs, and exploration risk and reserves analysis.

Sternbach, C.A. Merrill, R.K., and Dolson, J.C., eds., 2021, Giant Fields of the Decade: 2010-2020: Am. Assoc. Petroleum Geologists Memoir 113. 455p.

Merrill, R. K., and Sternbach, C.A., 2017, Concepts, Technology, Price, and Access Drive Giant Field Discoveries, in, Merrill, R. K., and Sternbach, C.A., eds. Giant Fields of the decade 2000-2010: Am. Assoc, Petroleum Geologists Memoir 113, p. 1-7.

Merrill, R. K., and Sternbach, C.A., eds. 2017, Giant Fields of the decade 2000-2010: Am. Assoc. Petroleum Geologists Memoir 113. 322p.

Merrill, R.K., Trujillo, S.K., Simpson, S.D. and Wall, R.M., 2004, An international perspective on entry into hydrocarbon-producing basins of Eastern Australia, PESA Eastern Australian Basins Symposium II., Adelaide, p. 35-40.

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Merrill, R. K., ed., 1991, Source and Migration Processes and Techniques for Evaluation: Am. Assoc. Petroleum Geologists, Handbook of Petroleum Geology, 213 p.

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**APPENDIX II****DOCUMENTS CONSIDERED IN PREPARING THIS REPORT**

I have relied on all of the documents and testimony cited in my report, including the text and footnotes therein. I have listed below other documents that I considered in preparing my report.

**Document Database**

As part of my assignment, I was provided access to the extensive database (Relativity software database) containing relevant information including documents produced by defendants in this case and certain third-parties.

**Court Documents**

Amended Complaint, including the alleged public statements by Anadarko.

**Anadarko Documents Produced in Discovery**

- APC-01338912: September 2012, SHENANDOAH – Thin Section Observations, Jake Ramsey
- APC-00793752: July 12, 2012, Shenandoah – WR 51, 52, 96
- APC-00822587: March 26, 2014, Shenandoah Basin Upper Wilcox-1 Structure Rev8-m2\_RTM
- APC-00795125: June 11, 2013, WR52#2 SHENANDOAH #3 Pre-drill PPFG, Beth Kendall and Yafei Wu
- APC-00001505: September 2013 Exploration – Development Review (also, APC-00592612)
- APC-00001071: Faults and fractures from OBMI Data by Beth Kendall (date unclear)
- APC-00005081: Coherence
- APC-00007095: May 2014 Shenandoah Geomechanical Study by the Exploration Group
- APC-01433072: June 2014, Reservoir modeling
- APC-00011019: August 2014(?) Structural Uncertainties – Chip Oudin
- APC-00147988: August 6, 2014, Partner comments, Chip Oudin
- APC-00017440: Conoco challenges 8-2014
- APC-00023446: Top Cretaceous Structure
- APC-00011876: 8-26-2014 Partners Meeting
- APC-00148608: November 17, 2014, Structure and Isopach maps, Beth Kendall
- APC-00001146: December 10, 2014, Shenandoah Appraisal Program Partnership Meeting
- APC-01343664: December 2014, Fractures, Beth Kendall
- APC-00151164: Shenandoah\_partner\_meeting\_Dec14\_2014\_Venari\_maps
- APC-00018452: December 16, 2014, Well Design
- APC-00060256: Lower Tertiary (Wilcox) Play after Shen-1 and 2 and before Shen-3 spudded in May 2014

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- APC-00002204: January 2015, Shenandoah Appraisal update and recommendation
- AOC-01680096: January 2015, Shenandoah Appraisal Program update
- APC-00020023: January 2015 Shenandoah Concerns by Development Team of Chandler, Frye, Noll, Oudin, and Rodriquez
- APC-01343663: January 2015, Deformation bands, Scott Wilkins
- APC-00000992: February 17, 2015 Email from Chip Oudin to Doug Shotts
- APC-00000959: February 2015, Managing Dynamic Uncertainty – Feb. 2015, Doug Shotts
- APC-00858446: March 3, 2015, Shenandoah Update Meeting
- APC-01346625: April 15, 2015, Shenandoah Top Seal Capacity, Yafei Wu
- APC-00001683: May 13, 2015, Shenandoah Project Overview
- APC-01344616: May 20, 2015, Shenandoah Strat-structure Workshop Wrap-up, Beth Kendall
- APC-00881368: May 20, 2015, UBS Presentation UBS Global Oil and Gas Conference 2015
- APC-00033832: June 2015 APC\_COP Compare
- APC-00046615: Shen 4 Sub-Salt Update 2015
- APC-00193551: September 9, 2015, Shenandoah Project Update and Preliminary Budget Review
- APC-01349733: October 2015, Shenandoah 4 Update, Exploration team, Trautman, Johnson, Kendall, Pachman, Camden, and Strickling
- APC-00001935: November 2015, Shenandoah Exploration Overview
- APC-00237721: December 2, 2015, Shenandoah Project Update
- APC-01702198: January 11, 2016, RCT Work Session
- APC-00002305: January 14, 2016, Shenandoah EC Update
- APC-00222131: January 21, 2016, Shenandoah 5, WR 51#4 Appraisal Well Proposal
- APC-00001917: February 1, 2016, Shenandoah 5, WR 51#4 Appraisal Well Proposal
- APC-01180884: March 2016, Shenandoah Appraisal Update
- APC-00065685: February 17, 2016, Shen-4 Post Appraisal by Exploration team of Trautman, Johnson, Kendall, Pachman, Camden, and Strickling
- APC-00071074: April 13, 2016, Core and Depositional Integration Workshop by Oudin and Chandler
- APC-00071075: April 13, 2016, Shenandoah Structural Interpretation from Image Logs and Core
- APC-00076459: June 2016, Post Shen-1 interpretations, Chip Oudin (also APC-01714340, APC-00332347 & APC-00326927)
- APC-01351361: January 20, 2016, Shenandoah 2016 Resource Assessment, Breck Johnson
- APC-00084015: October 5, 2016, Shenandoah & The Paleo Puzzle, Paul Sikora and Breck Johnson

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- APC-01351361: January 20, 2016, Shenandoah Fault Block Resource Assessment, Breck Johnson
- APC-01180900: February 1, 2016, Shenandoah 5, WR 51 #4 Appraisal Well Proposal, Paul Chandler, Doug Shotts
- APC-01351563: February 17, 2016, Shenandoah 4 Post Appraisal, by Exploration team of Trautman, Johnson, Kendall, Pachman, Camden, and Strickling
- APC-01180902: March 2016, Shenandoah: An Appraisal Update, Paul Chandler
- APC-01361147: May 2016, Several seismic structure maps, Beth Kendall and Kathy Dull
- APC-00002476: May 9, 2016, SEC Letter – David Minces to SEC Office of the Whistleblower
- APC-00287617: September 14, 2016, Shenandoah EC Update
- APC-01380094: October 24, 2016, Wilcox Trend Analog Study, Dick Mead
- APC-00090253: March 21, 2017, Shenandoah Development Options
- APC-00106887: May 2017(?) Post Shen 6 Mapping Update, Paul Chandler
- APC-01362344: June 2016, Shenandoah Exploration – Historical TimeLine, Beth Kendall
- APC-01373814: September 14, 2016, Shenandoah 2016 EC Update, Paul Chandler
- APC-01313328: January 30, 2017, TerraTek Deformation Band Strength Study: Shenandoah 5, Scott Wilkins
- APC-01286239: June 2017 Shenandoah Overview, Paul Chandler
- Non-Party\_NRF\_00000556: Ryder Scott Consultation Regarding Shenandoah Allegations
- Non-Party\_NRF\_00000648: Confidential In the Matter of Anadarko Petroleum Corp., MFW-4106 November 22, 2016 – Norton Rose Fulbright report

**Geotechnical Publications Concerning Deep Gulf of Mexico**

Dutton, Shirley, P., and Robert G. Louks, 2014, Reservoir quality and porosity-permeability trends in onshore Wilcox sandstones, Texas and Louisiana Gulf Coast: Application to deep Wilcox plays offshore Gulf of Mexico: Journal of the Gulf Coast Association of Geological Societies, v. 3, p. 33-40.

Fulthrope, Craig S., William E. Galloway, John W. Snedden, Patricia E. Ganey-Curry, and Timothy L. Whiteaker, 2014, New insights into Cenozoic depositional systems of the Gulf of Mexico Basin: Gulf Coast Association of Geological Societies Transactions, v. 64, p. 119-129.

Hudec, Michael R., Martin P.A. Jackson, and Frank J. Peel, 2013, Influence of deep Louann structure on the evolution of the northern Gulf of Mexico: American Assoc. Petroleum Geologists Bulletin, v. 97, no. 10, p. 1711-1735.

Joanna Mander, Julie d'Ablaing, John Howie, Ken Wells, Rahila, Ramazanova, David Sheperd, and Cherie Lee, 2012, 21st Century Atlantis – Incremental Knowledge from a Staged-Approach to Development, Illustrated by a Complex Deep-Water Field, in, Norman C. Rosen *et al.*, New understanding of the petroleum systems of the continental margins of the world: Society of Sedimentary Geology, v. 32, p. 65-95.

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Lach, Joseph, 2010, IOR for Deepwater Gulf of Mexico: Report prepared by Knowledge Reservoir for the Research Partnership to Secure Energy for America, RPSEA, p. 211.

Leyendecker, E.A., 2014, The Gulf of Mexico Advantage: Search and Discovery Article #110175. Slides accompanying a recorded presentation at the Discovery Thinking Forum, AAPG Annual Convention and Exhibition, Houston, Texas. The link to the recorded presentation is: <https://www.aapg.org/videos/discovery-thinking/articleid/37096/ernie-leyendecker-discovery-thinking-the-gulf-of-mexico-advantage>.

Marlborough, John Pierre, and Abu Kabir Mostafa Sarwar, Lower Tertiary Wilcox Play with Prospective Wells, Keathley Canyon, Gulf of Mexico: Gulf Coast Association of Geological Societies Transactions, v. 66, p. 373-399.

Oghena, Andrew, Dingen Zhou, Robert Fitzmorris, and Adwait Chawathe, 2017, Gas Injection for GOM Deepwater Wilcox Trend Fields Development: Challenges and Recovery Potential (abstract): October 2017 SPE Annual Technical Conference and Exhibition.

Rose, Peter R., 1992, Chance of Success and its use in Petroleum Exploration: Chapter 7: Part II Nature of the Business, in Steinmetz, Richard, ed\., Treatise of Petroleum Geology, The Business of Petroleum Exploration: Am. Assoc. Petroleum Geologists, Tulsa, Oklahoma, p. 71-86.

Rose, Peter R., 2000, Exploration Economics, Risk-Analysis, and Prospect Evaluation: Course Notes, Rose and Associates, L.L.P., Austin, Texas.

Shumaker, Niven, Daniel Haymond, and Joe Martin, 2014, Kinematic linkage between minibasin welds and extreme overpressure in the deepwater Gulf of Mexico: Interpretation, v. 2, no. 1, p. 75.

Snedden, John W., Luciana D. Tinker, and Jon Virdell, 2018, Southern Gulf of Mexico source to sink: Investigating and predicting Paleogene Wilcox reservoirs in eastern Mexico deepwater areas: American Assoc. Petroleum Geologists Bulletin, v. 102, no. 10, p. 2045-2074.

Snedden, John. W., Robert C. Cunningham, and Jon W. Virdell, 2020, The northern Gulf of Mexico offshore super basin: Reservoirs, source rocks, seals, traps and successes: American Assoc. Petroleum Geologists Bulletin, v. 104, no. 12, p. 2603-2642.

Sweet, Michael, L., John W. Snedden, Marcie Purkey ,and Ryan Weber, 2021, Tiber Deep (Keathley Canyon 102): New Insights into Upper Cretaceous Deepwater Plays in the Northern Gulf of Mexico, Part 1: Lithofacies and Reservoir Quality Trends: GeoGulf Transactions, v. 71, p. 289-297.

Weimer, Paul, Renaud Bouroulec, James Adson, and Stephen P.J. Cossey, 2017, An overview of the petroleum systems of the northern deepwater Gulf of Mexico: American Assoc. Petroleum Geologists Bulletin, v. 101, no. 7, p. 941-993.

#### **Public Documents Concerning Shenandoah Field**

2013.03.19: Press Release

2014.03.04: Presentation 2014 Investor Conference

2014.03.04: Transcript 2014 Investor Conference

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- 2014.10.31: “Conoco Phillips throws in the towel on Coronado,” <https://www.oedigital.com/news/454266-conocophillips-throws-in-towel-on-coronado>
- 2015.02.03: Transcript Q4 2014 Anadarko Petroleum Corp Earnings Call
- 2015.02.20: 2014 10-K for the fiscal year ended December 31, 2013
- 2015.03.03: Presentation 2015 Anadarko Investor Conference Call
- 2015.03.03: Transcript Anadarko Petroleum Corp 2015 Capital Program and Guidance Call
- 2015.05.05: Transcript Q1 2015 Anadarko Petroleum Corp Earnings Call
- 2015.05.20: Transcript Anadarko Petroleum Corp at UBS Global Oil and Gas Conference
- 2015.07.28: Press Release
- 2015.07.29: Transcript Q2 2015 Anadarko Petroleum Corp Earnings Call
- 2015.10.27: Press Release
- 2015.10.28: Transcript Q3 2015 Anadarko Petroleum Corp Earnings Call
- 2015.11.11: Transcript Anadarko Petroleum Corp at Jefferies Energy Conference
- 2016.02.17: 2015 Form 10-K for the fiscal year ended December 31, 2014
- 2016.02.24: Transcript Anadarko Petroleum Corp at Credit Suisse Energy Summit
- 2016.05.24: Transcript Anadarko Petroleum Corp at UBS Global Oil and Gas Conference
- 2016.07.26: 2Q 2016 10-Q
- 2016.07.27: Transcript Q2 2016 Anadarko Petroleum Corp Earnings Call
- 2016.08.16: Transcript Anadarko Petroleum Corp at EnerCom Oil & Gas Conference
- 2016.09.14: Transcript Anadarko Petroleum Corp at UBS Houston Energy Bus-less Tour
- 2016.11.01: Transcript Q3 2016 Anadarko Petroleum Corp Earnings Call
- 2017.02.01: Transcript Q4 2016 Anadarko Petroleum Corp Earnings Call
- 2017.02.17: 2016 10-K for the fiscal year ended December 31, 2015
- 2020.07.20: Frye Filing

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**APPENDIX III****Shenandoah G&G Concerns (CFO 1/2015) (APC-00020023)**

Chandler, Paul; Frye, Lea; Noll, Christian; Oudin, Chip; Rodriguez, Arnold

- Compartmentalization – primarily faulting, but also evidence from wells in basin for variable sand thicknesses (stratigraphic pinchouts?). Seismic evidence for faulting away from structure, also evidence that Yucatan deep structure is faulted; what is likelihood that faults extend onto and segment structure?
- WR52#1 Discovery Well and relationship to Shenandoah accumulation – Current model isolates sands seen in well with DTN fault (not seen in well nor evident on seismic) and salt/fault northern boundary. If DTN fault does not exist, WR52#1 helps define Shenandoah accumulation on eastern side of structure; if DTN fault does exist, how many more faults not seen on seismic are present that might segment reservoirs? COP addresses this in their Dec. 2014 presentation (North “seed” vs. South “seed”).
- Salt encountered in WR52#1 above Lower Wilcox reservoirs – what does this represent? Current model implies salt wing from overlying allochthonous salt, but base-salt geometry from seismic and type of salt encountered (gypsum, anhydrite) imply residual salt welt or possible caprock for deeper salt stock. Current model also applies weld-like surface as northern boundary to Shenandoah structure; similar geometry to weld, but different implications.
- Salt exit point for proposed Shen-4 well – potential to come out of salt significantly shallower than currently prognosed, into area with localized BOS “high.” Possible drilling concern, especially with potential for uplifted or rafted section beneath salt. BOS geometry strikingly similar to BOS near Vito MC984#1 ST2, which encountered uplifted deeper section where reservoir was expected.
- Deep structure on west and northern flanks – sub-Cretaceous reflectivity suggests complex, uplifted (possibly salt-cored?) structure along northern flank of Shenandoah AND in vicinity of proposed Shen-4 appraisal well (WR51 “F” & “G” locations). COP and Cobalt see potential for drilling into “rafted” block with western location; what are implications for reservoir presence and quality? As mentioned above, I see similarities with Vito MC984#1 ST2 well.
- Sand correlations in basin – questions about sand correlations between Shenandoah and Yucatan. Three Shenandoah wells correlate well with each other, but uncertainty about how stratigraphy ties to Yuc-2 (WR96#2).
- Seismic imaging – is current data sufficient to define structure and reservoir? Current multi-client product undergoing final iteration to bring BOS back to depths seen in wells, as compared to deeper-than-encountered BOS depths on recent volume. Will final spec volume improve or degrade sub-salt imaging? Can horizon/surface interpretations from recent volume be adjusted to fit well control and still yield workable results?

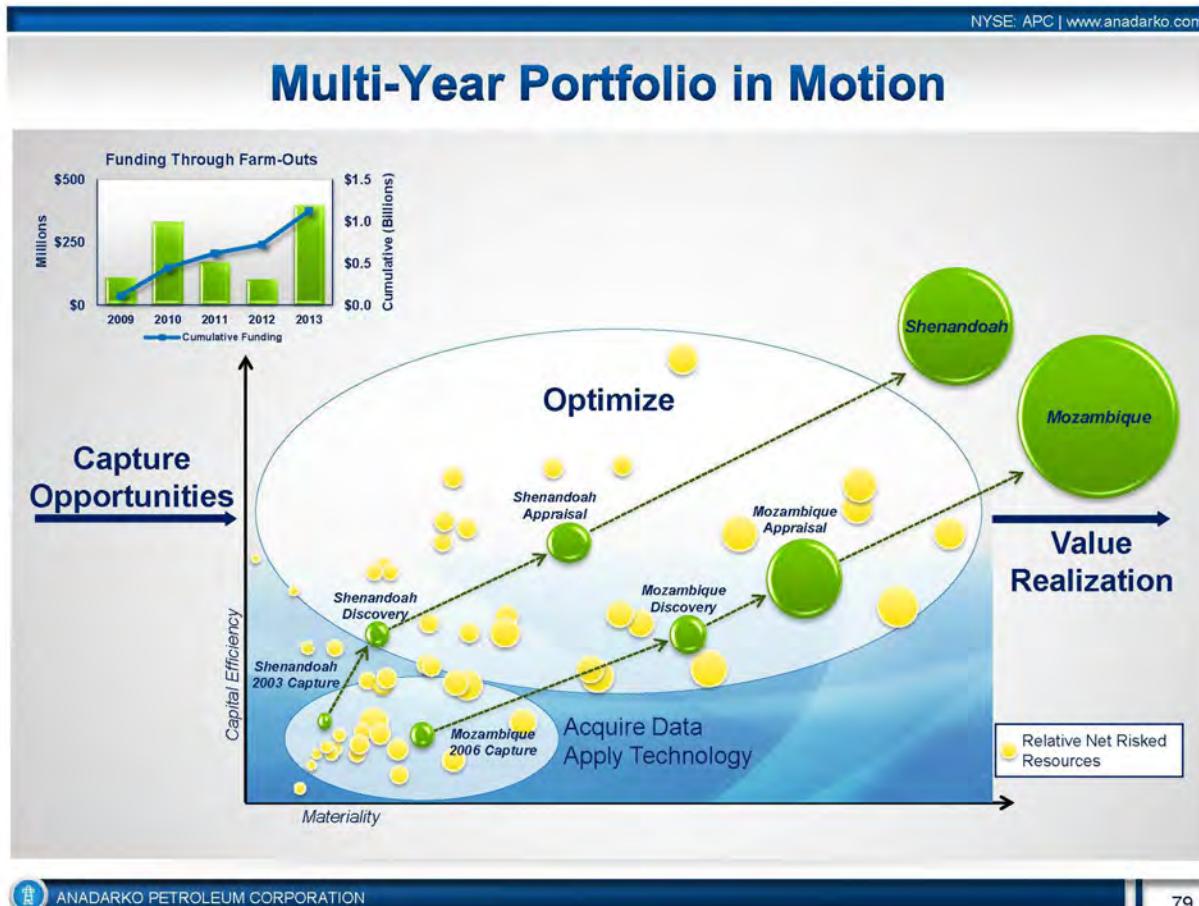
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- Fluid types – to date two types of oils have been seen in Shenandoah, between those encountered in WR52#1 and WR51#2. Which type is more prevalent across the discovery? Are there other types? What does this imply about the discovery area?
- Fluid contacts – to date no OWC's have been encountered on the discovery. Are contacts inferred from WR52#2 & WR51#2 (Shen-3 & Shen-2) applicable to the entire structure, or do multiple scenarios exist for multiple contact levels (*i.e.* WR52#1 & WR52#2 (Shen-1 & Shen-3), plus other possibilities)?

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## APPENDIX IV

## Slide used to depict Anadarko's Exploration Portfolio



ANADARKO PETROLEUM CORPORATION

79

Slide 79 from the March 4, 2014, Anadarko 2014 Investor Conference illustrates the potential magnitude of the Shenandoah discovery

## **Exhibit 21**

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UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION

In re ANADARKO PETROLEUM § Civil Action No. 4:20-cv-00576  
CORPORATION SECURITIES LITIGATION §  
\_\_\_\_\_  
§ CLASS ACTION  
§ The Honorable Charles R. Eskridge III

**EXPERT REPORT OF BJORN I. STEINHOLT, CFA**  
**NOVEMBER 9, 2022**

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**I. INTRODUCTION AND QUALIFICATIONS**

1. I am a Managing Director at Caliber Advisors, Inc. (“Caliber”), a full-service valuation and economic consulting firm with offices in San Diego, California and Chicago, Illinois. Prior to Caliber, I was a founding Principal of Financial Markets Analysis (“FMA,”) an economic consulting, valuation and litigation support firm focusing on securities litigation consulting. Prior to FMA, I was a Vice President and then Principal at Business Valuation Services (“BVS”), a national full-service financial valuation firm that was part of publicly traded CBIZ, Inc. (NYSE: CBZ). Prior to BVS, I was a Financial Analyst, Vice President and Senior Vice President in the San Diego office of Princeton Venture Research, Inc. (“PVR”), a national investment banking, venture capital and litigation support firm. Prior to PVR, I was a Graduate Fellow performing investment research at the University of San Diego.

2. I have more than 30 years of experience providing capital markets consulting, including analyzing and valuing investments. Over the past 20 years, I have been retained on numerous occasions to provide expert opinions relating to market efficiency, materiality, loss causation and damages in large and complex securities class actions similar to this litigation. In *Gruber v. Gilbertson, et al.*, No. 1:16-cv-09727 (S.D.N.Y.), I provided trial testimony relating to loss causation and damages on behalf of plaintiff, resulting in an award of damages by the jury earlier this year. In *In re China Intelligent Lighting & Elecs., Inc.*, No. 2:11-cv-02768 (C.D. Cal.), the court entered its judgment based on my aggregate damages estimate. In *Jaffe v. Household Int'l Inc., et al.*, No. 1:02-cv-05893 (N.D. Ill.), the court adopted my guidance in calculating pre-judgment interest. In *In re Novatel Wireless Sec. Litig.*, No. 3:08-cv-01689 (S.D. Cal.), the court undertook a rigorous *Daubert* analysis of every element of my loss causation analysis and damages methodology and found that “Steinholt’s testimony on loss causation and damages, based on his event study analysis, is reasonable and reliable.” In *Willis, et al. v. Big Lots, Inc., et al.*, No. 2:12-

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cv-00604 (S.D. Ohio), the court concluded that “Steinholt has set forth a methodology for later calculating damages on a class-wide basis . . . and explained how it is both workable and consistent with Plaintiffs’ theory of liability in this particular case,” and that my class-wide damages opinion was “both relevant and reliable.”

3. Other courts have similarly found my testimony admissible, including in *New England Health, et al. v. Qwest Commc’ns Int’l Inc., et al.*, No. 1:01-cv-01451 (D. Colo.); *Employer-Teamsters Joint Council No. 84 Pension Tr. Fund, et al. v. Am. W. Holdings Corp., et al.*, No. 2:99-cv-00399 (D. Ariz.); *Nursing Home Pension Fund, et al. v. Oracle Corp., et al.*, No. 3:01-cv-00988 (N.D. Cal.); and *Carson, et al. v. Neopharm Inc., et al.*, No. 1:02-cv-02976 (N.D. Ill.). Furthermore, several other courts have cited my testimony in support of their decisions, including in *In re Healthsouth Corp. Sec. Litig.*, No. 2:03-cv-01501 (N.D. Ala.); *Luman v. Anderson, et al.*, No. 4:08-cv-00514 (W.D. Mo.); *Abu Dhabi Com. Bank, et al. v. Morgan Stanley & Co. Inc., et al.*, No. 1:08-cv-07508 (S.D.N.Y.); *Smilovits v. First Solar, Inc., et al.*, No. 2:12-cv-00555 (D. Ariz.); *Marcus v. J.C. Penney Co., Inc., et al.*, No. 6:13-cv-00736 (E.D. Tex.); *Villella, et al. v. Chem. & Mining Co. of Chile, Inc., et al.*, No. 1:15-cv-02106 (S.D.N.Y.); and *Purple Mountain Tr. v. Wells Fargo & Co., et al.*, No. 3:18-cv-03948 (N.D. Cal.).

4. I received a Master of International Business degree from the University of San Diego and a Bachelor of Science degree in Computer Science and Engineering from California State University, Long Beach. In addition to my graduate business degree and my engineering degree, I have earned the professional designation of Chartered Financial Analyst (“CFA”) awarded by the CFA Institute, and I participate in its continuing education program. The CFA designation is a qualification for finance and investment professionals focusing on investment

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management and securities analysis of common stock, fixed income and other investments. A summary of my background and qualifications is attached as Exhibit A to this report.

5. On October 1, 2021, I submitted an expert report in this case that included various analyses demonstrating that new and material information about Anadarko Petroleum Corporation (“Anadarko,” “APC,” or the “Company”) was widely disseminated to the market, analyzed by market participants and traded on, causing the information to quickly become reflected in the Company’s stock price.<sup>1</sup> Specifically, I concluded that (a) the market in which Anadarko common stock traded during the period from February 20, 2015 through May 2, 2017, inclusive (the “Class Period”), was impersonal, open, well-developed, and efficient in that the prices quickly responded to incorporate and reflect new, material information as it became available, and that, therefore, (b) it was reasonable for investors to rely on the integrity of the market price of Anadarko during the Class Period as reflecting all publicly available information.<sup>2</sup> Furthermore, I also concluded that class-wide damages can be calculated in this case using an event study damages framework based on the event study methodology, and, if necessary, fundamental valuation principles.<sup>3</sup>

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<sup>1</sup> Expert Report of Bjorn Steinholt, CFA, dated October 1, 2021 (“Steinholt Class Cert. Report,” hereby incorporated by reference), ¶¶19-52. Throughout this report, I use the term “material information” in the manner investors and securities analysts generally use the term, as opposed to a legal conclusion. From an economic point of view, the value of an investment is based on the expected future cash flows of that investment, including the timing and associated risk of those cash flows. Material information, sometimes also referred to as value-relevant information, therefore, is information that impacts the future cash flows or the timing or riskiness of the future cash flows. See Jerald E. Pinto, *et al.*, *Equity Asset Valuation*, John Wiley & Sons Inc., at 18-19 (2d ed. 2010) (“The most important type of equity valuation models are present value models. In finance theory, present value models are considered the fundamental approach to equity valuation. . . . A present value model or discounted cash flow model applied to equity valuation derives the value of the common stock as the present or discounted value of its expected future cash flows.”).

<sup>2</sup> Steinholt Class Cert. Report, ¶¶7, 60.

<sup>3</sup> *Id.*, ¶¶53-59, 61.

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6. On November 17, 2021, I was deposed by Defendants' counsel in this matter (the "Steinholt Class Cert. Deposition").

7. On February 2, 2022, I submitted a rebuttal report in this case (the "Steinholt Class Cert. Rebuttal," hereby incorporated by reference) responding to various assertions made by Defendants' expert Dr. Allen Ferrell in his report, dated December 10, 2021 (the "Ferrell Class Cert. Report").

8. The compensation for the work performed in this matter is based on the number of hours worked times each analyst's billable rate. My billable rate is currently \$525 per hour. My compensation is not contingent on the outcome of this case.

## II. OVERVIEW OF ASSIGNMENT

9. I was engaged by Robbins Geller Rudman & Dowd LLP, Class Counsel, to examine, analyze, and opine on the economic issues relating to loss causation and the quantification of class-wide damages for Class members who purchased Anadarko common stock during the Class Period.

10. First, I have been asked to opine on whether Defendants' scheme, misleading statements, and deceptive business practices alleged in the Amended Complaint for Violations of the Federal Securities Laws, dated August 17, 2020 (the "Complaint") contained, or omitted, important information that a reasonable investor would have wanted to consider prior to making an investment decision; and whether Defendants' alleged misconduct caused economic losses to investors who purchased Anadarko's common stock during the Class Period.

11. Second, I have been asked to provide an economic framework to quantify the potential Section 10(b) damages suffered by purchasers of Anadarko's common stock during the Class Period.

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12. My opinions in this matter are based on my professional experience, as well as my review of a substantial amount of information, including: (a) the Complaint; (b) the Court's Memorandum and Order, dated January 19, 2021; (c) the Court's Order of Class Certification, dated September 28, 2022; (d) public filings by Anadarko with the United States Securities and Exchange Commission ("SEC") from 2015 through 2017, including filings on Form 10-K, Form 10-Q, Form 8-K, Proxy Statements and Prospectuses; (e) Anadarko press releases and conference call transcripts from February 2015 through May 2017; (f) securities analyst reports relating to Anadarko and its industry from February 2015 through May 2017; (g) contemporaneous media reports regarding Anadarko and its industry from February 2015 through May 2017; (h) price, volume and other trading information for Anadarko common stock, market and industry indices, and peer group companies; (i) internal documents produced in discovery in this matter<sup>4</sup>; and (j) articles, court decisions, and other relevant information cited in this report. A summary of the information I have relied upon in this case is attached hereto as Exhibit B.

### **III. SUMMARY OF OPINIONS**

13. This report is based on the evidence I have reviewed to date. I understand that Class Counsel are still in the process of conducting expert discovery on behalf of Plaintiffs and that additional information may become available, such as relevant opinions and analyses by Defendants' experts. As a result, I may modify my conclusions based on such additional evidence.

14. Based on my review and analysis of the information available to me, as well as my professional experience analyzing loss causation and damages, it is my opinion that:

- (a) The market in which Anadarko's common stock traded during the Class Period was open, developed and efficient, in that the market prices during this time period quickly changed to reflect new and material information

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<sup>4</sup> Class Counsel provided me with online access to the repository of documents produced in this case, many of which I understand are subject to the protective order in this case.

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concerning the Company as such information became available. Specifically, new and material information about Anadarko was widely disseminated to the market, analyzed by market participants and traded on, causing the information to quickly become reflected in the Company's stock price.

- (b) Defendants' alleged scheme and misleading statements contained, or omitted, information that a reasonable investor would have wanted to consider prior to making an investment decision, causing Anadarko's common stock to trade at artificially inflated prices during the Class Period.
- (c) When the alleged truth was publicly disclosed, Anadarko's stock price declined, causing Class members to suffer economic damages as a result of the alleged fraud (*i.e.*, the disclosure of the alleged truth).
- (d) The event study framework, as explained in greater detail below, can be used to quantify damages in this case. While this framework is flexible, if Plaintiffs prove all of the allegations, the estimated dollar inflation per share is:
  - From February 21, 2015 through July 26, 2016: \$1.75 per share<sup>5</sup>
  - From July 27, 2016 through May 2, 2017: \$1.92 per share.

15. For shares purchased during the Class Period and still owned at the end, the measure of out-of-pocket damages is simply the inflation at the time of purchase. In this case, for shares sold prior to the end of the Class Period, damages are zero, as the inflation at the time of purchase is always equal to or less than the inflation at the time of sale. Furthermore, the recoverable damages are also limited by the Federal 90-Day Bounce Back Rule.<sup>6</sup>

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<sup>5</sup> Because the Class Period began with an alleged misleading statement made after the market closed on February 20, 2015, the first day with inflation as a result of that misleading statement would be the next day, February 21, 2015; *see also infra*, ¶20.

<sup>6</sup> 15 U.S.C. §78u-4(e). According to this Rule, recoverable damages are limited to either: (a) the purchase price per share less the average closing price from May 3, 2017 through the day of the sale, if sold on or prior to July 31, 2017; or (b) the purchase price less \$47.88 per share (90-day average closing price after the Class Period) if still retained at the end of July 31, 2017.

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#### IV. COMPANY BACKGROUND

16. During the Class Period, Anadarko was one of the largest independent exploration and production (“E&P”) companies in the world, with proved reserves of approximately 1.7 billion BOE (“barrels of oil equivalents”) as of December 31, 2016.<sup>7</sup> Anadarko had three reporting segments: First, the Oil and Gas Exploration and Production segment involved in exploring for and producing oil, natural gas, and NGLs (“natural gas liquids”), which made up 73% of gross revenues in 2016.<sup>8</sup> Second, the Midstream segment involved gathering, processing, treating, and transporting Anadarko and third-party oil, natural gas, and NGLs production as well as gathering and disposal of produced water. Third, the Marketing segment involved selling much of Anadarko’s oil, natural gas, and NGLs production as well as third-party purchased volumes.<sup>9</sup> At all relevant times, Anadarko’s common stock was listed and traded on the New York Stock Exchange (“NYSE”), under the ticker symbol “APC.”

17. Anadarko was also “among the largest independent producers in the deepwater Gulf of Mexico.”<sup>10</sup> In the first quarter of 2009, the Company announced the Shenandoah “high-impact” oil discovery well, the Shenandoah-1 (or Shen-1) exploration well, located in Walker Ridge in the deepwater Gulf of Mexico.<sup>11</sup>

18. By March 2013, following the reported success of Anadarko’s Shen-2 appraisal well, the Company stated that the Shenandoah field represented “one of Anadarko’s largest oil

<sup>7</sup> Anadarko 2016 Form 10-K, filed with the SEC on February 17, 2017, at 4.

<sup>8</sup> *Id.* at 144. Oil and Gas Exploration and Production segment (\$6,842 million, or 72.7%), Midstream segment (\$2,038 million, or 21.7%), and Marketing segment (\$527 million, or 5.6%).

<sup>9</sup> *Id.*

<sup>10</sup> Anadarko 2014 Form 10-K, filed with the SEC on February 20, 2015, at 2.

<sup>11</sup> May 6, 2009, Anadarko press release, “Anadarko Announces First-Quarter Results.”

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discoveries in the Gulf of Mexico,” and that ““Anadarko is strategically positioned in the Shenandoah Basin, which has the potential to become one of the most prolific new areas in the deepwater Gulf of Mexico.””<sup>12</sup>

19. Following the results of the Shen-3 appraisal well, on February 2, 2015, Anadarko reported its results for 4Q2014 and FY2014, including that the “[a]ppraisal activity . . . in the Gulf of Mexico at the Shenandoah discovery continued to validate the company’s geologic models around these apparent commercial discoveries.”<sup>13</sup> Though Shen-3 found no hydrocarbons, as noted in an RBC analyst report, APC held Shen-3 well out as a “success,”<sup>14</sup> and, as a result, analysts generally viewed the results from the Shen-3 well as a positive.<sup>15</sup>

20. The Class Period starts on February 20, 2015, when Anadarko, after the market closed, filed its annual Form 10-K with the SEC, stating that the Shen-3 “finished drilling at the end of 2014 and found approximately 50% (1,470 feet) more of the same reservoir sands 1,500 feet down-dip and 2.3 miles east of the Shenandoah-2 well, which encountered over 1,000 feet of net oil pay in excellent quality Lower Tertiary-aged sands,” and that the Shen-3 well “confirmed the sand depositional environment, lateral sand continuity, excellent reservoir qualities, and down-

<sup>12</sup> March 19, 2013, Anadarko press release, “Anadarko Announces Shenandoah Appraisal Well Encounters More than 1,000 Net Feet of Oil Pay.”

<sup>13</sup> February 2, 2015, Anadarko press release, “Anadarko Announces 2014 Fourth-Quarter And Full-Year Results.”

<sup>14</sup> February 2, 2015, RBC analyst report on Anadarko, “APC – 4Q14 EPS Miss, but strong operation CFPS beat.”

<sup>15</sup> See, e.g., February 2, 2015, UBS analyst report on Anadarko, “Messy 4Q EPS But Cash Flow and Production In Line; 2015 Guidance Deferred Until Analyst Day” (“In the deepwater Gulf of Mexico, it completed the second appraisal well at the Shenandoah prospect (Shenandoah-3), which enabled projection of preliminary oil/water contact, increasing confidence in the ultimate resource potential. Establishing oil/water contact was one of the primary objectives of the well, and APC remains enthusiastic that Shenandoah is a giant field.”).

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dip thickening [and] also enabled the projection of oil-water contacts based on pressure data and reduced the uncertainty of the resource range.”<sup>16</sup>

21. On October 27, 2015, Anadarko announced that it had “[c]ompleted a successful appraisal test [Shen-4 appraisal well] at the Shenandoah field in the Gulf of Mexico,” and that the Shen-4 had “encountered more than 620 net feet of oil pay.”<sup>17</sup> The following day, on October 28, 2015, Anadarko held a conference call on which analyst Evan Calio of Morgan Stanley asked: “[C]ongrats on another Shenandoah appraisal. Could you discuss how the results compare to pre-drill expectations or comments on reservoir quality, and [then] go-forward plans?” In response, Defendant Robert Daniels, stated:

We got 622 feet of pay.

What we ended up doing was we tested up to the north with trying to find out where the basin edge was, and the first well established where the basin edge was. Then we came in and drilled to the south with a side track, and got the 622 feet of pay. It was all oil, we encountered no water in that.

The reservoir quality in the initial assessment looks pretty – well, it looks comparable to everything else we’ve found out there. So very good reservoir quality.

\* \* \*

[W]e’re very encouraged with what we saw, and it was all well within the range of expectation of what we had put out there.<sup>18</sup>

<sup>16</sup> Anadarko Form 10-K, filed with the SEC on February 20, 2015, at 9. On March 3, 2015, the Anadarko Petroleum Corp 2015 Capital Program and Guidance Call was held, where the Company also represented that the Shen-3 was very successful: “Let’s look at some more details of a couple of our focus areas, starting in the Deepwater Gulf of Mexico. We’re excited about the advancement of Shenandoah. We pushed down dip on Shenandoah-3, searching for the oil/water contact, looking for reservoir continuity and quality, and to get a core in the down dip portions of the reservoir. This was a very successful appraisal well.”

<sup>17</sup> October 27, 2015, Anadarko press release, “Anadarko Announces Third-Quarter 2015 Results.”

<sup>18</sup> October 28, 2015, Anadarko conference call, “Q3 2015 Anadarko Petroleum Corp Earnings Call,” at 5-6.

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22. On July 26, 2016, after the market closed, Anadarko announced that the Shen-5 appraisal well had “[e]ncountered more than 1,040 net feet of oil pay,” and that it had increased its working interest in the Shenandoah from 30% to 33%.<sup>19</sup> The following day, on July 27, 2016, Anadarko held a conference call with analysts during which Defendant Robert Walker stated:

[W]e were real pleased with what we saw on the number 5 well. Not surprised, but we were very pleased to see it come in as we had predicted it would, 1,040 feet-plus of pay. We are about a half mile east of the number 2 well, and then we are going to move farther east and down-dip with the number 6.<sup>20</sup>

23. On February 17, 2017, Anadarko filed its annual Form 10-K with the SEC and provided the following update regarding the Shenandoah:

*Shenandoah* Anadarko and its partners are continuing to work toward determining the commerciality of the Shenandoah field. The Company has selected a Semisubmersible concept to support the potential development as part of these efforts. The front-end engineering design (FEED) on the Semisubmersible will continue while Anadarko continues appraisal drilling to further delineate the opportunity before making a future sanctioning decision.

The Company spud the Shenandoah-5 well, the fourth appraisal well at the Shenandoah discovery (33% working interest), in the first quarter of 2016. The well encountered more than 1,040 net feet of oil pay, extending the resource in the central-to-eastern limits of the field. The well has been secured for potential future production operations. The Shenandoah-6 appraisal well was spud in the fourth quarter of 2016. The drilling objective is to establish the oil-water contact on the eastern flank of the field and to help quantify the resource potential of the basin.<sup>21</sup>

24. On May 2, 2017, after the market had closed, Anadarko reported a loss of \$318 million, or \$0.58 per share, and revealed that “Anadarko recently completed drilling operations at

<sup>19</sup> July 26, 2016, Anadarko press release, “Anadarko Announces Second-Quarter 2016 Results.” The remaining working interest in the Shenandoah by the other partners were ConocoPhillips (30%), Cobalt International (20%), and privately owned Venari Resources (17%).

<sup>20</sup> July 27, 2016, Anadarko conference call, “Q2 2016 Anadarko Petroleum Corp Earnings Call,” at 5.

<sup>21</sup> Anadarko Form 10-K, filed with the SEC on February 17, 2017, at 11. Internally, as of March 31, 2017, Anadarko assigned a book value of the Shenandoah of \$893 million. APC-00734803.

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the Shenandoah-6 appraisal and sidetrack well, which did not encounter the oil-water contact in the eastern portion of the field,” and that the Company “has currently suspended appraisal activity in the field while it evaluates the path forward.”<sup>22</sup> The reported earnings were below the Company’s guidance and analysts’ expectations, internally attributed largely to the write-off and expenses related to the Shenandoah.<sup>23</sup>

25. According to Anadarko’s Form 10-Q, also filed after the market closed on May 2, 2017, the reported 1Q2017 loss was primarily a result of writing off the Shenandoah asset (\$467 million) and expensing all drilling costs (\$435 million), for a combined total of \$902 million. The Form 10-Q stated:

During the three months ended March 31, 2017, the Company expensed suspended exploratory well costs of \$435 million related to the Shenandoah project in the Gulf of Mexico, including \$267 million previously capitalized for a period greater than one year. The Shenandoah-6 appraisal well and subsequent sidetrack, which completed appraisal activities in April 2017, did not encounter the oil-water contact in the eastern portion of the field. Given the results of this well and the present commodity-price environment, the Company has currently suspended further appraisal activities. Accordingly, the Company determined that the Shenandoah project no longer satisfies the accounting requirements for the continued capitalization of the exploratory well costs.

\* \* \*

The Company recognized \$532 million of impairments of unproved Gulf of Mexico properties during the three months ended March 31, 2017, of which \$467 million related to the Shenandoah project. The unproved property balance related to the Shenandoah project originated from the purchase price allocated to the Gulf of

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<sup>22</sup> May 2, 2017, Anadarko press release, “Anadarko Announces First-Quarter 2017 Results.”

<sup>23</sup> See, e.g., APC-00735955 (April 21, 2017 email from Robin Fielder to Defendant Al Walker *et al.*, regarding 1Q2017 earnings materials: “Recall that we stripped out the Eagleford and Marcellus from guidance which implied a loss of \$(0.53)/share. With those divested assets added back, the midpoint of our guidance suggests \$(0.23)/share. The street consensus is very close to this at \$(0.22)/share, however we should report adjusted earnings of \$(0.60)/share, largely due to exploration expense associated with Shenandoah. . . . The big driver of [negative] EPS is the write-down of book value at Shenandoah.”).

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Mexico exploration projects from the acquisition of Kerr-McGee Corporation in 2006.<sup>24</sup>

26. The May 2, 2017 announcement, after the market had closed, that Anadarko was suspending appraisal activities at the Shenandoah, marks the end of the Class Period.

## V. SUMMARY OF PLAINTIFFS' ALLEGATIONS

27. For the purpose of my analysis, I have assumed that Plaintiffs will be able to prove the factual allegations at trial.<sup>25</sup> In general, Plaintiffs allege that Defendants engaged in a fraudulent scheme by multiple methods and means and made misleading statements during the Class Period that concealed the alleged truth – the lack of commercial viability of the Shenandoah project.<sup>26</sup>

28. Plaintiffs allege that Defendants made public statements leading up to and during the Class Period about Shen that they failed to correct and concealed the following material facts necessary not to make their statements misleading:

- (a) Each well post-Shen-2 reflected a significantly reduced Shen's resource size, falling below the range of expectations and rendering Shen uncommercial;
- (b) Fault compartmentalization posed a serious risk to Shen's commercial viability and producible resource size;
- (c) Anadarko's resource range for Shen did not adequately reflect its structural uncertainties and sand thickness variability;
- (d) Pressure data from Shen-3 did not allow for the reliable projection of oil-water contacts;
- (e) The asphaltene deposition properties of the Shenandoah crude oils had multiple negative impacts on commercial viability;

<sup>24</sup> 1Q2017 Anadarko Form 10-Q, filed with the SEC on May 2, 2017, at 13, 37.

<sup>25</sup> This is consistent with the traditional role of a damages expert. Mark A. Allen, *et al.*, "Reference Guide on Estimation of Economic Damages," *Reference Manual on Scientific Evidence*, at 432 (3d ed. 2011) ("In almost all cases, the damages expert proceeds on the hypothesis that the defendant committed the harmful act and that the act was unlawful.").

<sup>26</sup> Complaint, ¶¶152-153.

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- (f) Results from Shen-3 and Shen-4 resulted in a resource reduction of 64%, despite both wells being described as successful;
- (g) An internal audit of Shen by Anadarko's RCT resulted in a significant downward adjustment to the resource size;
- (h) Defendants suppressed the truth about Shen through multiple means and methods, including through censorship and intimidation of dissenters;
- (i) Senior reservoir engineer and subsurface lead on the Shen project, Lea Frye, filed a whistleblower complaint with the SEC alleging that Anadarko was exaggerating Shen's value and resource size; and
- (j) Shen was more likely than not uncommercial after the results of Shen-3, and certainly not commercially viable after Shen-4.

29. Finally, the alleged truth, *i.e.*, the lack of commercial viability of the Shenandoah project, was disclosed after the market had closed on May 2, 2017, as part of the Company's 1Q2017 announcement, including the suspension of appraisal activities in the Shenandoah and the associated \$902 million write-off and expenses.<sup>27</sup>

## VI. MARKET EFFICIENCY IN A FRAUD-ON-THE-MARKET CONTEXT

30. An efficient market is one that efficiently processes new and material information. In an efficient market, new and material information is quickly incorporated into the stock price as different investors buy and sell based on their respective evaluations of the new information disclosed.<sup>28</sup> This also means that the resulting stock price will reflect the investors' consensus regarding the stock's value given the available public mix of information.<sup>29</sup> The driving force that

<sup>27</sup> *Id.*

<sup>28</sup> How quickly new information is incorporated into the stock price depends on how unexpected and complex the information is. Generally, it is reasonable to assume that new and material information is incorporated into a stock price within one day.

<sup>29</sup> This does not mean that all market participants agree on what the true value of the common stock is, as evidenced by the fact that some investors sell as others buy. Rather, it means that the respective investor's view of the stock's true value drives their purchases and sales (*i.e.*, the demand and supply for the stock), which in turn becomes the basis for the consensus price set by the overall market.

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causes markets to be efficient is the competition amongst investors to quickly analyze and trade on new information as it becomes available. As a result of this competition, riskless profit opportunities are short-lived and do not persist in efficient markets. This concept has broad empirical support.<sup>30</sup>

31. For securities class actions, there are two important implications of an efficient market. First, in an efficient market, it is reasonable for investors to rely on the integrity of the market price. As explained in a commonly used finance textbook, “[i]n an efficient market you can trust prices,” because they quickly impound new and material information, meaning that “in an efficient market, there is no way for most investors to achieve consistently superior rates of return.”<sup>31</sup>

32. Second, in an efficient market, the impact of the alleged scheme and misleading statements can be estimated, and class-wide damages quantified, based on an analysis of the market prices using an event study.<sup>32</sup> This is so because the “alleged misrepresentations and omissions, whether material or immaterial, would be so equally for all investors composing the class,” and that, therefore, the Class “will prevail or fail in unison.”<sup>33</sup>

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<sup>30</sup> Burton G. Malkiel, “The Efficient-Market Hypothesis and the Financial Crisis,” *Rethinking the Financial Crisis*, Russell Sage Found., at 75 (2012) (“At its core, EMH [the Efficient Market Hypothesis] implies that arbitrage opportunities for riskless gains do not exist in an efficiently functioning market and that, if they do appear from time to time, they do not persist. The evidence is clear that this version of EMH is strongly supported by the data.”).

<sup>31</sup> Richard A. Brealey, et al., *Principles of Corporate Finance*, McGraw-Hill, at 337 (11th ed. 2013).

<sup>32</sup> See Mark L. Mitchell & Jeffry M. Netter, *The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission*, 49 Bus. Law 545 (1994).

<sup>33</sup> *Amgen Inc. v. Conn. Ret. Plans & Tr. Funds*, 568 U.S. 455, 459-60 (2013).

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33. In *Cammer v. Bloom*, the court analyzed the criteria that should be evaluated in determining whether a market is efficient.<sup>34</sup> The *Cammer* court asked for evidence that the stock traded in an open and developed market, and provided five factors to assess market efficiency, including evidence showing that the market participants had the sophistication to understand the economic implications of new and material information (market makers/institutions), that they analyzed the information (analyst coverage), and that they traded on the information (trading volume). In my experience, and from an economic point of view, the *Cammer* factors are very useful in determining whether a market was open and developed, and would be expected to efficiently process new, material information. As discussed above, academic research has shown that equity securities that trade in open and developed markets quickly react to new and material information so that it is extremely difficult, if not impossible, to consistently outperform the overall market prices.<sup>35</sup> Consequently, in such markets, it would be reasonable to rely on the integrity of the market prices. *Cammer* also explained that it would be “helpful” to demonstrate that the stock price in question quickly reacted to new and material company-specific information, as this represents direct evidence of market efficiency. In the Steinholt Class Cert. Report (incorporated by reference), I discussed how each of these factors support market efficiency here and, consequently, concluded that the market for Anadarko’s common stock traded in an efficient market.<sup>36</sup>

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<sup>34</sup> *Cammer v. Bloom*, 711 F. Supp. 1264 (D.N.J. 1989).

<sup>35</sup> See Eugene E. Fama & Kenneth R. French, *Luck Versus Skill in the Cross-Section of Mutual Fund Returns*, J. of Fin., Vol. 65 (2010).

<sup>36</sup> See Steinholt Class Cert. Report, ¶¶19-45. In addition, the Steinholt Class Cert. Report analyzed the three additional factors first identified in *Krogman v. Sterritt*, 202 F.R.D. 467 (N.D. Tex. 2001), and concluded that each of these additional *Krogman* factors has also been met in this case. Steinholt Class Cert. Report, ¶¶46-52.

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## VII. THE EVENT STUDY METHODOLOGY

34. In securities class action cases, the event study is generally considered superior to other valuation techniques in isolating the impact of new information on stock prices. In an efficient market, securities prices quickly incorporate new, material information. Consequently, the price movement following a disclosure of new information can be analyzed to: (a) assess statistical significance; and (b) quantify the portion of the price movement not explained by market and industry factors, *i.e.*, the company specific portion of the price movement.<sup>37</sup> This type of analysis is generally referred to as an event study.<sup>38</sup>

35. In the Steinholt Class Cert. Report, I ran event study regressions for each day during the Class Period as part of my analysis assessing market efficiency.<sup>39</sup> I also explained that “[f]or the purpose of quantifying damages, or the impact of the alleged fraud, it may be necessary to modify the event study somewhat to properly isolate the fraud-related component of the price movement.”<sup>40</sup> In my discussion below I will review the event study I used for the purposes of quantifying damages, and explain where it differs from the event study I used for the purpose of analyzing market efficiency.

36. In this case, the event study methodology is particularly helpful in quantifying damages. The alleged truth in this case was disclosed at the end of the Class Period (after the market closed on May 2, 2017) when Defendants announced the suspension of appraisal activity

<sup>37</sup> A statistically significant price movement is one that is unlikely to have occurred simply by chance, and, consequently, is therefore a price movement that was likely caused by the event (new information revealed on the event day analyzed).

<sup>38</sup> For a more detailed explanation of the event study methodology, *see supra* n.32, Mitchell & Netter (1994).

<sup>39</sup> Steinholt Class Cert. Report, ¶¶37-38, Ex. D.

<sup>40</sup> *Id.*, n.49.

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at Shenandoah and, as a result, wrote off the Shenandoah asset (\$467 million) and expensed all drilling costs (\$435 million), for a combined total of \$902 million.<sup>41</sup> The Shenandoah write-off and expenses accounted for all, or substantially all, of the entire shortfall in 1Q2017 earnings, announced at the same time, while the Company’s FY2017 guidance remained the same.<sup>42</sup> As I will explain in greater detail below, it is my opinion that in this case, an event study that controls for market and industry factors (including Colorado regulatory factors) can be used to estimate the impact of the disclosure of the alleged truth on Anadarko’s stock price, the artificial inflation and resulting damages. Below, I will discuss the five different steps that are generally included when conducting an event study: (a) define the event(s); (b) control for market and industry factors; (c) select control period(s); (d) calculate predicted returns, abnormal returns and t-statistics; and (e) interpret results.

37. **STEP 1: Define the Event.** The first step of conducting an event study involves defining the relevant event to be analyzed. This case relates to Defendants’: (a) pre-Class Period characterization of Shenandoah as ““one of Anadarko’s largest oil discoveries in the Gulf of Mexico,”” and as having ““the potential to become one of the most prolific new areas in the deepwater Gulf of Mexico””<sup>43</sup>; and (b) concealment of negative information during the Class Period that would have revealed Shenandoah’s lack of commercial viability, *i.e.*, the alleged truth. In other words, Plaintiffs allege that the positive outlook for Shenandoah that existed prior to the Class Period was maintained throughout the Class Period until the disclosure of the alleged truth

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<sup>41</sup> 1Q2017 Anadarko Form 10-Q, filed with the SEC on May 2, 2017, at 13, 37.

<sup>42</sup> *Supra*, ¶23 n.21.

<sup>43</sup> March 19, 2013, Anadarko press release, “Anadarko Announces Shenandoah Appraisal Well Encounters More than 1,000 Net Feet of Oil Pay.”

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when the Company disclosed that it was suspending appraisal activity in the Shenandoah field.<sup>44</sup> Consequently, the key event to be analyzed in this case is Anadarko's 1Q2017 announcement after the market closed on May 2, 2017 (press release and Form 10-Q filed with the SEC) and May 3, 2017 (conference call with analysts held prior to the market opened). More specifically, since all of the alleged truth was disclosed after the market closed on May 2, 2017 and before the market closed on May 3, 2017, I will use the event study to analyze the change in Anadarko's closing price from May 2, 2017 to May 3, 2017 (in other words, Anadarko's May 3, 2017 price decline), and quantify the impact of the disclosure of the alleged truth.

**38. STEP 2: Control for Market and Industry Factors.** The second step of conducting an event study involves selecting a market index and an industry index to control for market and industry factors. In Anadarko's SEC filings, the Company itself identified the S&P 500 as its market index, and the returns of a group of Anadarko's E&P peers ("E&P Peer Group") as its industry index, and used these indices to measure the performance of its own stock price.<sup>45</sup> Consequently, for the purpose of analyzing market efficiency, I used the S&P 500 index to control for market factors and an equally weighted index of the companies in the E&P Peer Group to control for industry factors.<sup>46</sup> That said, I also noted that "it may be necessary to modify the [E&P Peer Group] somewhat to properly isolate the fraud-related component of the price movement."<sup>47</sup>

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<sup>44</sup> May 2, 2017, Anadarko press release, "Anadarko Announces First-Quarter 2017 Results"; Anadarko Form 10-Q, filed with the SEC on May 2, 2017, at 13, 37.

<sup>45</sup> Anadarko 2016 Form 10-K, filed with the SEC on February 17, 2017, at 51. The E&P Peer Group includes: Apache Corporation, Chesapeake Energy Corporation, Chevron Corporation, ConocoPhillips, Devon Energy Corporation, EOG Resources, Inc., Hess Corporation, Marathon Oil Corporation, Noble Energy, Inc., Occidental Petroleum Corporation, and Pioneer Natural Resources Company.

<sup>46</sup> Steinholt Class Cert. Report, ¶37.

<sup>47</sup> *Id.*, n.49.

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39. Defendants have argued that one factor unrelated to the alleged truth (also known as a confounding factor) that may not be properly controlled for, in the context of price impact, when using the E&P Peer Group index, is new information regarding the Colorado's regulatory environment that was impacted by an explosion in Firestone, Colorado ("Firestone Explosion"), discussed in greater detail below. This is because only one company (Noble Energy) of the eleven companies making up the E&P Peer Group index had any meaningful operation in Colorado, specifically in the Wattenberg Field or Denver-Julesburg Basin (the "DJ Basin"), and thereby any meaningful exposure to the Colorado regulatory environment.<sup>48</sup> Consequently, I also considered a peer group index of the following Colorado operators that all had substantial operations in the DJ Basin: Noble Energy, PDC Energy, SRC Energy, and Extraction Oil & Gas (the "Colorado Peer Group").<sup>49</sup> The companies in the Colorado Peer Group were also identified in analyst reports as

<sup>48</sup> See Steinholt Class Cert. Deposition at 28:8-12, 29:3-11 ("So I have one company here, Noble Energy, that probably was impacted by the Firestone issue, but then there would be other companies in the peer group that may not be impacted by that. . . . On April 17th there was an explosion close to one of Anadarko's wells, and there are many different implications of that. One could be the overall regulatory environment in Colorado. So the regular – any changes to the regulatory environment would not only impact Anadarko, it would impact all the companies doing business in Colorado.").

<sup>49</sup> **Noble Energy** Form 10-K, filed with the SEC on February 14, 2017, at 2-3 ("Noble Energy is a leading independent crude oil and natural gas exploration and production company with a diversified high-quality portfolio spanning three continents and consisting of both US unconventional and global offshore conventional assets. . . . Approximately 75% of our 2017 capital program is allocated to US onshore development, primarily focused on liquids-rich opportunities in the DJ Basin, Delaware Basin and Eagle Ford Shale."); **PDC Energy** Form 10-K, filed with the SEC on February 28, 2017, at 2 ("We are a domestic independent exploration and production company that acquires, produces, develops, and explores for crude oil, natural gas, and NGLs. Our operations are located in the Wattenberg Field in Colorado; the Utica Shale in southeastern Ohio; and, with the closing of our \$1.76 billion acquisitions of proved producing, proved undeveloped, and unproved leaseholds in December 2016, in the Delaware Basin in Texas . . . ."); **SRC Energy** (formerly Synergy Resources Corporation) Form 10-K, filed with the SEC on February 23, 2017, at 2 ("[SRC Energy] is a growth-oriented independent oil and gas company engaged in the acquisition, development, and production of oil and natural gas in the Denver-Julesburg Basin [or DJ Basin], which we believe to be one of the premier, liquids-rich oil and natural gas resource plays in the United States."); **Extraction Oil & Gas** Form 10-K, filed with

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potentially being impacted by the Colorado regulatory environment following the Firestone Explosion.<sup>50</sup> Furthermore, each of these companies was also identified by Defendants' class certification expert as Colorado operators that experienced significant price declines on May 3, 2017, following an update by the Frederick-Firestone Fire Department and reactions by Governor Hickenlooper and others regarding the Firestone Explosion.<sup>51</sup> Consequently, the Colorado Peer Group index is a relevant index to consider as it not only reflects general industry factors, but also Colorado-specific factors that could have impacted Anadarko's stock price on May 3, 2017.

40. **STEP 3: Select a Control Period.** The third step involves selecting a control period with normal price returns unaffected by the events examined, or estimation window, to determine the normal historical statistical relationship between Anadarko's price returns and that of the market and industry indices used in the regressions. In this case, when using the S&P 500 index in combination with the E&P Peer Group index as inputs to the event study regression, I used the 252 trading-day period (approximately one-year) prior to May 3, 2017, as the control

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the SEC on March 13, 2017, at 8 ("We are an independent oil and gas company focused on the acquisition, development and production of oil, natural gas and NGL reserves in the Rocky Mountain region, primarily in the Wattenberg Field of the Denver-Julesburg Basin (the 'DJ Basin') of Colorado.").

<sup>50</sup> April 27, 2017, Evercore analyst report on Anadarko, "APC Colorado Shut-ins" ("APC . . . temporarily shut in roughly 3,000 legacy vertical wells in NE Colorado following a home explosion on April 17th in Firestone. . . . DJ basin exposed peers underperformed today on sympathy (NBL, SRC, XOG, PDCE)."); April 27, 2017, Wells Fargo analyst report on Anadarko, "APC: Statement on Colorado Explosion" ("In response to a tragic explosion that occurred in Firestone, CO on April 17, Anadarko has made the decision to shut-in 3,000 DJ Basin vertical wells . . . . Other DJ producers that might feel some pressure resulting from this incident include NBL and PDCE and to a lesser extent XOG and SRCI."); May 2, 2017, Wells Fargo equity research report ("Regulatory Concern could Pressure all DJ Players. . . . decision to move to the sidelines . . . SRCI and XOG, reflects our belief that all DJ basin-exposed names will remain under pressure given the fear of a potential regulatory response. The other two prominent DJ players in our universe include Noble Energy (NBL, \$31.42) and PDC Energy (PDCE, \$54.77).").

<sup>51</sup> Ferrell Class Cert. Report, Figure 1.

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period.<sup>52</sup> In other words, the inputs to the regression are the returns of Anadarko and the market and peer group indices during the 252-trading day period prior to May 3, 2017, while the output is a regression equation that predicts Anadarko's price movement on the event day.

41. With respect to event study regressions that included the Colorado Peer Group index, I used a shorter control period because one of the companies (Extraction Oil & Gas) in the Colorado Peer Group only started to trade on October 12, 2016, leaving only 138 trading days available for the control period. While this is less than the one-year period I normally use, a shorter control period is consistent with the academic literature which typically use control periods ranging from 100 to 300 days.<sup>53</sup> In other words, for event studies that included the Colorado Peer Group index, I used a 138-day control period, *i.e.*, the maximum number of days available, when determining the regression equation.

42. **STEP 4: Predicted Returns, Abnormal Returns, and P-values.** The fourth step of conducting an event study involves using the regression equation discussed above to calculate Anadarko's predicted returns for the day analyzed. The difference between Anadarko's actual return and its predicted return is the abnormal return, also known as the residual return, *i.e.*, Anadarko's return net of market and industry factors. The abnormal return is also commonly referred to as the Company-specific return.

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<sup>52</sup> See *supra* n.32, Mitchell & Netter (1994) ("The [control] period for this market model equation typically ranges from 100 to 300 trading days preceding the event under study. . . . [Control] periods that cover the 253 days (one year) prior to the event are presented.").

<sup>53</sup> *Id.*; see also A. Craig MacKinlay, *Event Studies in Economics and Finance*, J. of Econ. Literature, Vol. 35, No. 1 (Mar. 1997) ("The most common choice, when feasible, is using the period prior to the event window for the [control] period . . . For example, in an event study using daily data and the market model, the market model parameters could be estimated over the 120 days prior to the event.").

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43. Statistical significance is then assessed by calculating the t-statistic (abnormal return divided by the standard error during the control period). The magnitude of the t-statistic is used to assess statistical significance, *i.e.*, the likelihood of the stock price return occurring simply by chance. More specifically, the t-statistic translates into a p-value, or probability that a price movement of equal or greater magnitude would occur randomly. A p-value of 5% or less (*i.e.*, a result that has a 5% or less chance of occurring randomly), is defined as being statistically significant at the 5% level. Similarly, a p-value of 1% or less (*i.e.*, a result that has a 1% or less chance of occurring randomly), is defined as being statistically significant at the 1% level; and a p-value of 10% or less (*i.e.*, a result that has a 10% or less chance of occurring randomly), is defined as being statistically significant at the 10% level.<sup>54</sup>

44. **STEP 5: Interpret the Statistical Results.** Finally, the fifth step of conducting an event study involves interpreting the statistical results for the event analyzed. In this case, I first compared the explanatory power, or adjusted R-squared, of my two-factor regressions using the S&P 500 index as a proxy for the market in combination with either: (a) the Colorado Peer Group index, or (b) the E&P Peer Group index, as proxies for the industry.<sup>55</sup> I found that using the S&P 500 index in combination with the Colorado Peer Group index explained more than 75% of the

<sup>54</sup> Richard A. DeFusco, *et al.*, *Quantitative Investment Analysis*, John Wiley & Sons, Inc., at 248-49 (2d ed. 2007) (“Qualitatively, if we can reject a null hypothesis at the [10%] level of significance, we have **some evidence** that the null hypothesis is false. If we can reject a null hypothesis at the [5%] level, we have **strong evidence** that the null hypothesis is false. And if we can reject a null hypothesis at the [1%] level, we have **very strong evidence** that the null hypothesis is false.”) (emphasis in original).

<sup>55</sup> Daniel L. Rubinfeld, “Reference Guide on Multiple Regression,” *Reference Manual on Scientific Evidence*, at 345 (3d ed. 2011) (“R-squared . . . is a statistic that measures the percentage of variation in the dependent variable that is accounted for by all the explanatory variables. Thus, [R-squared] provides a measure of the overall goodness of fit of the multiple regression equation. Its value ranges from 0 to 1. An [R-squared] of 0 means that the explanatory variables explain none of the variation of the dependent variable; an [R-squared] of 1 means that the explanatory variables explain all of the variation.”).

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price movements in Anadarko's stock price, while using the S&P 500 index in combination with the E&P Peer Group index explained approximately 73%. While this is not a large difference, it does indicate that the event study using the Colorado Peer Group index provides a better fit, although using a shorter control period.<sup>56</sup>

45. More importantly, the event study using the S&P 500 index in combination with the E&P Peer Group index does not explain any of the Anadarko's stock price decline on May 3, 2017, as the predicted return for that day is positive (+0.3%). On the other hand, the event study using the S&P 500 index in combination with the Colorado Peer Group index results in a predicted return for May 3, 2017, of -4.28%. The difference between the actual return (-7.69%) less the predicted return (-4.28%), *i.e.*, the abnormal return or Company-specific return, was -3.42% and was statistically significant at the 1% level, a higher benchmark than the 5% level commonly used.<sup>57</sup> In other words, the event study using the S&P 500 index in combination with the Colorado Peer Group index explains 56% of Anadarko's -7.69% price decline on May 3, 2017.<sup>58</sup> Furthermore, the May 3, 2017, abnormal return of -3.42% translates into a Company-specific price

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<sup>56</sup> David I. Tabak & Fredrick C. Dunbar, "Materiality and Magnitude: Event Studies in the Courtroom," *Litigation Services Handbook: The Role of the Financial Expert*, at 19.6 (3d ed. 2001) ("While one should not use either the adjusted R-squared or t-statistics as a blind measure for the comparison of the explanatory power of different indices, an expert should be prepared to provide these statistics. Moreover, if the expert chooses one index with less statistical explanatory power than a second index, he or she should be prepared to defend this choice."). A three-factor regression with the S&P 500 index as a proxy for the market, the E&P Peer Group index as a proxy for the general industry, and the Colorado Peer Group index as a proxy for the Colorado industry provides the best fit (81%), but did not explain nearly as much of the May 3, 2017 price decline as the two-factor regression only including the Colorado Peer Group index.

<sup>57</sup> See *supra* n.54.

<sup>58</sup> (-4.28% predicted return) divided by (-7.69% actual return) equals 56%.

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decline of \$1.92 per share, or a reduction of Anadarko's market capitalization by \$1,075 million.<sup>59</sup>

The event study for May 3, 2017 is attached hereto as Exhibit C.

## VIII. LOSS CAUSATION

46. Loss causation relates to whether the alleged fraudulent act or omission "caused the loss for which the plaintiff seeks to recover damages."<sup>60</sup> In 2005, in *Dura Pharms., Inc. v. Broudo*, 544 U.S. 336 (2005), the Supreme Court considered the issue of loss causation in securities cases. The *Dura* opinion states that "an inflated purchase price will not itself constitute or proximately cause the relevant economic loss," because "if, say, the purchaser sells the shares quickly before the relevant truth begins to leak out, the misrepresentation will not have led to any loss."<sup>61</sup> Instead, loss causation is established when the "relevant truth begins to leak out," and the stock price declines as a result.<sup>62</sup> The "relevant truth" is generally considered to be the truth allegedly omitted or concealed by the misrepresentation. As one court explained, "to establish loss causation this disclosed information must reflect part of the 'relevant truth' – the truth obscured by the fraudulent statements."<sup>63</sup> While loss causation is a legal concept, below I will discuss the framework generally used by experts to analyze loss causation from an economic point of view.

<sup>59</sup> May 2, 2017, closing price of \$56.28 per share times 3.42% equals \$1.92 per share. May 3, 2017, Company-specific price decline of \$1.92 per share times 560.34 million Anadarko shares equals \$1,075 million. Shares outstanding from Anadarko Form 10-Q, filed with the SEC on May 2, 2017, cover page.

<sup>60</sup> Private Securities Litigation Reform Act of 1995, 15 U.S.C. §78u-4(b)(4).

<sup>61</sup> *Dura*, 544 U.S. at 342.

<sup>62</sup> *Id.*

<sup>63</sup> *Alaska Elec. Pension Fund v. Flowserv Corp.*, 572 F.3d 221, 230 (5th Cir. 2009); *In re Vivendi, S.A. Sec. Litig.*, 838 F.3d 223, 261 (2d Cir. 2016) ("[T]o show loss causation, it is enough that the loss caused by the alleged fraud results from the 'relevant truth . . . leak[ing] out.'") (internal citation omitted).

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47. In order to analyze loss causation, it is necessary to understand the various elements of the alleged fraudulent conduct. Generally, as in this case, Plaintiffs allege that Defendants engaged in a fraudulent scheme and made misleading statements that concealed an undisclosed, material truth (including the foreseeable economic consequences that flow from this material truth). The misrepresentations or omissions are deemed to be material if they, or the alleged or relevant truth concealed, would have been considered important by reasonable investors in making investment decisions. Material misrepresentations and omissions artificially inflate the stock price and, thereby, cause public investors to overpay for their shares. The artificial stock price inflation is then reduced or eliminated as information reflecting the alleged truth concealed by the fraud (including the foreseeable economic consequences thereof) is revealed, thereby causing economic losses to public investors who overpaid for their shares and now are unable to recover this overpayment by selling their shares. Importantly, the resulting economic losses are losses that would not have occurred had the alleged truth not been fraudulently concealed, as alleged by Plaintiffs.<sup>64</sup> Below I discuss the issues regarding materiality and loss causation, from an economic point of view, in greater detail.

#### **A. Materiality from an Economic Point of View**

48. Material information is often defined as information that a reasonable investor would want to consider prior to making an investment decision. In *Basic Inc. v. Levinson*, 485 U.S. 224 (1988), the Supreme Court quoted *TSC Indus., Inc. v. Northway, Inc.*, 426 U.S. 438 (1976), which stated that a fact is material “if there is a substantial likelihood that a reasonable shareholder

<sup>64</sup> From an economic point of view, a loss caused by fraud-related factors is the difference between an investor's: (a) actual loss, less (b) estimated loss that still would have been incurred even in the absence of the alleged fraudulent conduct. This is the same economic principle used in event studies when calculating the abnormal returns, discussed above, *i.e.*, the difference between: (a) the actual return, less (b) the predicted return.

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would consider it important” in making an investment decision or if it would have “significantly altered the “total mix” of information made available” to the shareholder.<sup>65</sup> The issues that are important to investors, *i.e.*, the information that reasonable investors would want to consider prior to making an investment decision, are usually factors that impact the value of an investment.

49. From an economic point of view, the value of an investment is based on the expected future cash flows of that investment, including the timing and associated risk of such cash flows.<sup>66</sup> With respect to the Shenandoah, its value would be based on the future revenues, costs, and ultimately the future cash flows generated. Internally, Anadarko valued the Shenandoah at \$893 million before the suspension of appraisal activities, or approximately 6% of the \$15.5 billion book value for the entire Company.<sup>67</sup> While book value is an accounting measure and sometimes very different than the market value investors may assign to an asset, it is generally viewed as a conservative measure of value.<sup>68</sup> If successfully sanctioned, or developed, the value of the Shenandoah could be higher, with one analyst estimating \$5 per share.<sup>69</sup> Another firm,

<sup>65</sup> *Basic*, 485 U.S. at 231-32 (quoting *TSC*, 426 U.S. at 449).

<sup>66</sup> See Jerald E. Pinto, *et al.*, *Equity Asset Valuation*, John Wiley & Sons Inc., at 2, 18 (2d ed. 2010) (“The intrinsic value of any asset is the value of the asset given a hypothetically complete understanding of the asset’s investment characteristics. . . . An absolute valuation model is a model that specifies an asset’s intrinsic value. . . . The most important type of absolute equity valuation models are present value models. In finance theory, present value models are considered the fundamental approach to equity valuation. . . . A present value model or discounted cash flow model applied to equity valuation derives the value of the common stock as the present or discounted value of its expected future cash flows.”).

<sup>67</sup> APC-00734803 (Shenandoah book value as of March 31, 2017). \$893 million divided by \$15,500 million equals 6%. Anadarko \$15.5 billion book value is from the Company’s Form 10-K, filed with the SEC on February 17, 2017, at 88.

<sup>68</sup> During the Class Period, Anadarko’s book value ranged from \$14.6 billion to \$19.4 billion, while its market value was higher and ranged from \$15 billion to \$50 billion. Anadarko’s Financial Statements on Forms 10-Q and 10-K; Steinholt Class Cert. Report, ¶47.

<sup>69</sup> March 9, 2017, KLR Group analyst report on Anadarko, “Slightly Higher Oil Composition Offsets Higher Operating Expenses.”

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around the start of the Class Period, estimated the potential value of the Shenandoah to Anadarko at \$3.6 billion or \$7 per share.<sup>70</sup> Regardless of the exact value, leading up to and during the Class Period, the Shenandoah was viewed as an economically significant project for Anadarko that, in an efficient market, would be expected to significantly impact the Company's stock price. Internal documents reflect this reality. For example, after Shen-2's results were announced, Anadarko's former CEO Al Walker exclaimed in an email to other top executives that "we are on our way to 3 digits :),"<sup>71</sup> referring to the price of Anadarko's stock.<sup>72</sup> The economic importance of the Shenandoah is also demonstrated by Anadarko's statistically significant stock price decline following the suspension of Shenandoah appraisal activities, discussed in greater detail below.

#### **B. Disclosure of the Alleged Truth**

50. Loss causation relates to the question of whether an alleged fraud caused the plaintiff to suffer economic losses. In other words, there has to be some causal relationship between the alleged misrepresentations and the economic loss that a plaintiff seeks to recover.

51. Based on Plaintiffs' allegations, the alleged truth regarding the Shenandoah was disclosed after the market closed on May 2, 2017, and before the market opened on May 3, 2017. Consequently, the appropriate price movement to analyze for loss causation purposes is Anadarko's stock price decline on May 3, 2017. This also would include an analysis of other new and potentially material information unrelated to the Shenandoah (known as confounding factors) that was also disclosed to the market at the same time. Below, I will review the corrective disclosure regarding the suspension of appraisal activities at the Shenandoah, as well as the

<sup>70</sup> February 2, 2015, Capital One Securities analyst report, "Morning Energy Summary."

<sup>71</sup> APC-00572955.

<sup>72</sup> See October 26, 2022 Deposition Transcript of Robert G. Gwin at 79:6-22.

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potentially confounding factor Defendants raised at the class-certification stage relating to: (a) information contained in Anadarko's announcement of 1Q2017 results and FY2017 guidance that was unrelated to the Shenandoah disclosure, and (b) increased concerns regarding the regulatory environment in Colorado following an update and reactions by Governor Hickenlooper and others regarding the so-called Firestone Explosion.

### **1. May 2-3, 2017, Shenandoah Disclosure**

52. On May 2, 2017, after the market closed, Anadarko announced its 1Q2017 results, provided guidance for 2Q2017 and FY2017, and disclosed that it was suspending appraisal activities of the Shenandoah. In short, for 1Q2017, Anadarko reported a loss of \$318 million (\$0.58 per share), predominantly as a result of \$902 million of Shenandoah write-offs and expenses, while maintaining its guidance for FY2017. Anadarko's May 2, 2017, press release, issued at 4:16 p.m., stated:<sup>73</sup>

Anadarko Petroleum Corporation (NYSE: APC) today announced its first-quarter 2017 results, reporting a net loss attributable to common stockholders of \$318 million, or \$0.58 per share (diluted).

\* \* \*

Anadarko recently completed drilling operations at the Shenandoah-6 appraisal and sidetrack well, which did not encounter the oil-water contact in the eastern portion of the field. The company has currently suspended appraisal activity in the field while it evaluates the path forward.<sup>74</sup>

53. On May 2, 2017 at 4:16 p.m., when the 1Q2017 losses were disclosed, Anadarko's stock price declined 1.1%; one minute later, by 4:17 p.m., its stock price had declined 2.0%; and 2 minutes later, by 4:18 p.m., its stock price was down 2.3%, on trades with a dollar value of

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<sup>73</sup> All times based on Eastern Standard Time.

<sup>74</sup> May 2, 2017, Anadarko press release, "Anadarko Announces First-Quarter 2017 Results." The press release did not provide any update regarding the Firestone Explosion.

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\$519,141. During this same time period, the stock prices of the four Colorado Peer Group companies did not decline at all as there were no trades, *i.e.*, the total dollar value of all of their trades was \$0. A May 2, 2017 *Bloomberg* article, published 8 minutes later at 4:24 p.m., with the headline “Anadarko 1Q Adjusted Loss Per Share Wider Than Est.; Shares Fall,” noted that Anadarko’s shares now were “down 3.5% since earnings release.”<sup>75</sup>

54. Anadarko’s Form 10-Q, filed on May 2, 2017, at 4:26 p.m., revealed the dollar impact of the Shenandoah suspension, *i.e.*, the resulting write-off and expenses, on the Company’s earnings. It stated:

During the three months ended March 31, 2017, the Company expensed suspended exploratory well costs of \$435 million related to the Shenandoah project in the Gulf of Mexico, including \$267 million previously capitalized for a period greater than one year. The Shenandoah-6 appraisal well and subsequent sidetrack, which completed appraisal activities in April 2017, did not encounter the oil-water contact in the eastern portion of the field. Given the results of this well and the present commodity-price environment, the Company has currently suspended further appraisal activities. Accordingly, the Company determined that the Shenandoah project no longer satisfies the accounting requirements for the continued capitalization of the exploratory well costs.

\* \* \*

- The Company recognized \$532 million of impairments of unproved Gulf of Mexico properties during the three months ended March 31, 2017, of which \$467 million related to the Shenandoah project. The unproved property balance related to the Shenandoah project originated from the purchase price allocated to the Gulf of Mexico exploration projects from the acquisition of Kerr-McGee Corporation in 2006.<sup>76</sup>

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<sup>75</sup> May 2, 2017, *Bloomberg*, “Anadarko 1Q Adjusted Loss Per Share Wider Than Est.; Shares Fall.”

<sup>76</sup> 1Q2017 Anadarko Form 10-Q, filed with the SEC on May 2, 2017, at 13, 37. The Form 10-Q did not provide any update regarding the Firestone Explosion.

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55. A *Bloomberg* article published at 4:43 p.m. stated that “Anadarko . . . reported a loss that missed estimates despite sales volumes that surged 20 percent,” and that the Anadarko shares “dropped 4.1 percent in after-hours trading as of 4:42 p.m. in New York.”<sup>77</sup>

56. On May 2, 2017, Bernstein issued an analyst report on Anadarko discussing that the Shenandoah disclosure also would be a negative for its Shenandoah partner Cobalt International. It stated:

In the DW GOM, some tie-back success was overshadowed by a large Shenandoah impairment (\$467 mln) and dry hole expensing (\$435 mln). Note the negative read-across to [Cobalt International].<sup>78</sup>

57. On May 2, 2017, Bank of America issued an analyst report on Anadarko discussing the earnings miss resulted, in large part, from the impact of the suspension of appraisal activities at the Shenandoah. It stated:

**Messy quarter masks solid operating quarter**

EPS of (\$0.60) missed consensus of a (\$0.23), but includes approximately \$350mm after tax write off (\$0.64) of its Shenandoah discovery in the US GoM, not stripped out as a special item. Adjusted for what is to us a non-recurring item . . .<sup>79</sup>

58. On May 2, 2017, RBC Capital Markets issued an analyst report on Anadarko discussing that the Shenandoah disclosure “could cause some market concern.”<sup>80</sup>

<sup>77</sup> May 2, 2017, *Bloomberg*, “Anadarko Profit Misses Estimates Even as Driller Boosts Output.”

<sup>78</sup> May 2, 2017, Bernstein analyst report on Anadarko, “Quick Take (APC): APC may suffer overhang on Firestone and Shenandoah but remember the 3D vision with Delaware in focus.”

<sup>79</sup> May 2, 2017, Bank of America analyst report on Anadarko, “1Q17 recap: last messy quarter of the ‘old’ portfolio: rate of change ahead.”

<sup>80</sup> May 2, 2017, RBC Capital Markets analyst report on Anadarko, “Market Focus May Be Elsewhere” (“Core results look good but results at Shenandoah and the well incident in the DJ could cause some market concern.”).

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59. On May 2, 2017, BMO Capital Markets issued an analyst report on Anadarko discussing the negative Shenandoah disclosure. It stated:

GAAP EPS was impacted by exploration and impairments, which included \$902mm of Shenandoah writedowns as appraisal activity has been suspended as APC evaluates path forward following the #6 well. We valued Shenandoah at \$241mm and modeled no development capex/production.<sup>81</sup>

60. On May 2, 2017 Johnson Rice issued an analyst report on Anadarko also discussing the Shenandoah disclosure as a negative development. It stated:

On the operations side, we see one key positive, one negative development, and one emerging concern. The key positive is a natural gas discovery at the Gorgon well offshore Colombia. . . . The negative development is an unsuccessful appraisal well at Shenandoah . . . .

The area of emerging concern is in the DJ . . . the regulatory response to the accident is where the uncertainty and our concern lie.<sup>82</sup>

61. The following day, on May 3, 2017, before the market opened, Anadarko held a conference call with analysts, during which the Company also addressed the suspension of appraisal activities at the Shenandoah. On the conference call, Anadarko's Executive VP-International & Deepwater Exploration, Defendant Ernest A. Leyendecker, stated:

We drilled the original well, which was designed to drill through the oil water contacts, and we did not see the oil water contacts in the well, so we backed up, and we sidetracked the well again towards the number 5 well where we had over 1,000 feet of pay looking for those oil water contacts again. And unfortunately, we did not get to completely prosecute the well to TD. We ran into some mechanical hole problems. We did see a partial section, so it was also inconclusive. And the challenges we've been having out there really are all related to try[ing] to image the structural fabric, and it's been one of our difficulties as we drill wells, we've

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<sup>81</sup> May 2, 2017, BMO Capital Markets analyst report on Anadarko, "1Q in Line, 2Q Lower but Full Year Unchanged; Shenandoah Appraisal Suspended."

<sup>82</sup> May 2, 2017, Johnson Rice & Co. analyst report on Anadarko, "Sales Note: Noisy Quarter on Divestments; 2Q17 Guide Light, but 2017 Intact."

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found some surprises, some of them negative and some of them positive. So we felt it was appropriate really to stop and evaluate what our path forward would be.<sup>83</sup>

62. On May 3, 2017, Atlantic Equities issued an analyst report on Anadarko, with the headline “Shenandoah field write-off overshadows results.” It stated:

- **Shenandoah write-off.** APC has written-off its Shenandoah project in the deepwater Gulf of Mexico and taken 1Q charges totaling \$1.4bn (\$2.52/share pre-tax or \$1.60/share post-tax). The move follows an unsuccessful sixth well and subsequent side track which did not find hydrocarbons, putting the scale of the field in doubt. Shenandoah was a high profile discovery which was considered to have potential to be a significant source of new production.<sup>84</sup>

63. On May 3, 2017, Societe Generale issued an analyst report on Anadarko also discussing the “negative” Shenandoah disclosure. It stated:

The only GOM DeepH2O negative was Shenandoah-6, which was a dry hole and has caused APC to suspend appraisal activity.<sup>85</sup>

64. On May 3, 2017, Goldman Sachs issued an analyst report on Anadarko discussing the Shenandoah disclosure and lowering its NAV (“net asset value”) estimate as a result. It stated:

Following unfavorable result from the Shenandoah well, APC is unlikely to pursue development of the project at current oil prices (consistent with previous commentary). We lower our NAV by \$1/shr associated with the Shenandoah prospect.<sup>86</sup>

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<sup>83</sup> May 3, 2017, Anadarko conference call, “Q1 2017 Anadarko Petroleum Corp Earnings Call,” at 8.

<sup>84</sup> May 3, 2017, Atlantic Equities analyst report on Anadarko, “Shenandoah field write-off overshadows results.”

<sup>85</sup> May 3, 2017, Societe Generale analyst report on Anadarko, “1Q17 Adjusted EPS Miss. Now 55% oil leveraged. Post asset sales, \$10.58/share in cash.”

<sup>86</sup> May 3, 2017, Goldman Sachs analyst report on Anadarko, “On track to meet 2017 outlook; lower asset sale proceeds negative.”

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65. On May 3, 2017, Ladenburg Thalmann issued an analyst report on Anadarko discussing the negative implications of the Shenandoah disclosure on the Company's reported earnings. It stated:

Lower EPS were primarily due to ~\$1.0 billion of dry hole and unproved property impairment expense (APC wrote off the costs associated with its deepwater GOM Shenandoah prospect as its #6 appraisal well did not encounter the oil-water contact on the eastern portion of the field).<sup>87</sup>

66. On May 3, 2017, UBS issued an analyst report on Anadarko also discussing the negative Shenandoah disclosure. It stated:

Meanwhile, the Shenandoah-6 appraisal well and subsequent sidetrack did not encounter the oil-water contact on the eastern portion of the field. APC has currently suspended appraisal activity while it evaluates the path forward, including monetizing the field or abandoning it as economics are marginal at current oil prices. We carry just \$300 million worth of value for the field in our NAV.<sup>88</sup>

67. On May 3, 2017, Macquarie issued an analyst report on Anadarko discussing the negative implications of the Shenandoah disclosure on the Company's "longer term growth" prospects. It stated:

- We would also highlight the company's decision to suspend appraisal drilling at Shenandoah and evaluate a path forward while taking a material impairment is also likely to weigh on the story. In the Gulf of Mexico, the near term focus is tiebacks with which the company continues to see success. However, with the determination that Shenandoah may not be a viable project at current crude prices, the longer term strategy in the GOM comes in to question. With 160 mboe/d of production, the near term strategy of tie backs can sustain production into 2019 but longer term growth is growing increasingly elusive, especially if an already discovered project like Shenandoah is not deemed economic.<sup>89</sup>

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<sup>87</sup> May 3, 2017, Ladenburg Thalmann analyst report on Anadarko, "Lower-than-Expected Q1 Results; Reiterates 2017 Production Guidance."

<sup>88</sup> May 3, 2017, UBS analyst report on Anadarko, "Large Exploration Expense Drives 1Q17 EPS/CFPS Miss but EBITDX Beats; Maintains 2017 Guidance."

<sup>89</sup> May 3, 2017, Macquarie analyst report on Anadarko, "Where Do We Go From Here?"

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68. On May 3, 2017, Wolfe Research issued an analyst report on Anadarko, recognizing that the Company was very involved in deepwater exploration, stating that the suspension of the Shenandoah “does take away from APC’s premium for exploration, which is gone, and no longer in our price target.”<sup>90</sup>

69. Anadarko’s suspension of appraisal activities relating to the Shenandoah also impacted Cobalt International Energy, one of Anadarko’s partners that had a 20% working interest in the Shenandoah. On May 3, 2017, *Bloomberg* reported that “[Cobalt International Energy] was cut to sell from neutral at Citi as Anadarko noted in its 1Q release suspension of further appraisal work at Shenandoah.”<sup>91</sup> Also on May 3, 2017, Bernstein reportedly cut its target price for Cobalt from \$2.00 per share to \$1.20 per share, citing “Anadarko’s disclosures effectively halting development of the Shenandoah field.”<sup>92</sup> Furthermore, a May 3, 2017, Cowen analyst report similarly noted that “[w]e and our equity colleague . . . who covers Anadarko, both believe that Anadarko put out disappointing news yesterday afternoon with respect to Shenandoah,”<sup>93</sup> and in a later analyst report on August 8, 2017, Cowen further explained that “[p]ost operator Anadarko’s write-down to the [Shenandoah] project in its Q1 results, we (and the market) had been ascribing little value here.”<sup>94</sup> Finally, Cobalt’s abnormal (or company specific) return on May 3, 2017, *i.e.*, following Anadarko’s Corrective Disclosure regarding the suspension of appraisal activities at the Shenandoah, was negative 11.3% and statistically significant at the 5% level.<sup>95</sup> In other words, the

<sup>90</sup> May 3, 2017, Wolfe Research analyst report on Anadarko, “Mr. Misunderstood – Always left out, never fit in.”

<sup>91</sup> May 3, 2017, *Bloomberg*, “Cobalt Intl Cut at Citi as Anadarko Suspends Shenandoah Work.”

<sup>92</sup> APC-00737640.

<sup>93</sup> May 3, 2017, Cowen & Co. analyst report on Cobalt, “Shenandoah Results A Negative.”

<sup>94</sup> August 8, 2017, Cowen & Co. analyst report on Cobalt, “Uncertainties Remain Post Q2.”

<sup>95</sup> Ferrell Class Cert. Report, Table 3.

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Shenandoah disclosure was viewed as new, negative information by Cobalt securities analysts and had a negative impact on Cobalt's stock price on May 3, 2017.

70. Based on my review of the evidence, including the above summary and my discussion in Section VIII.A. above, it is my opinion that the suspension of appraisal activities at the Shenandoah, disclosed by Anadarko after the market closed on May 2, 2017, represented new, negative, value-relevant information that a reasonable investor would have wanted to consider prior to making an investment decision in Anadarko. Below, in Section VIII.B.4., I will use an event study to quantify the negative impact of the Shenandoah disclosure discussed above.

**2. May 2-3, 2017 Announcement of 1Q2017 Results (excluding Shenandoah) and FY2017 Guidance**

71. On May 2, 2017, Anadarko announced 1Q2017 results and FY2017 guidance. As I will discuss below, the 1Q2017 results (excluding Shenandoah) were generally characterized as “good,” “in-line,” “solid,” “strong,” or a “beat,” while the FY2017 guidance was maintained. In the aggregate, this information generally met or exceeded investors’ expectations. The Company’s May 2, 2017, press release highlighted ““record oil sales volume, significantly improved margins and strong cash flows.”” It stated:

Anadarko Petroleum Corporation (NYSE: APC) today announced its first-quarter 2017 results, reporting a net loss attributable to common stockholders of \$318 million, or \$0.58 per share (diluted). These results include certain items typically excluded by the investment community in published estimates. In total, these items increased the net loss by \$12 million, or \$0.02 per share (diluted), on an after-tax basis. Net cash provided by operating activities in the first quarter of 2017 was \$1.12 billion.

**FIRST-QUARTER HIGHLIGHTS**

- Increased total year-over-year sales volume by approximately 20 percent on a divestiture-adjusted basis
- Achieved oil production of 353,000 barrels per day on a divestiture-adjusted basis, bolstered by record oil sales volume in the Deepwater Gulf of Mexico and Delaware Basin

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- Enhanced liquids product mix to 61 percent versus 53 percent year over year, contributing to significantly improved margins
- Completed Eagleford and Marcellus asset divestitures for net cash proceeds of \$2.8 billion, prior to final closing adjustments

“The first quarter of 2017 provides a clear picture of the power of our streamlined portfolio and the three ‘Ds,’ with record oil sales volume, significantly improved margins and strong cash flow,” said Al Walker, Anadarko Chairman, President and CEO. “We have largely completed our divestiture program and ended the quarter with nearly \$6 billion of cash on hand. These actions have increased our liquids product mix which, combined with the strengthening of commodity prices, substantially expanded our margins year over year. During the quarter, we continued to increase activity in the Delaware and DJ basins, adding six rigs to bring our current total to 21 across the U.S. onshore. In March, we also announced a 1.5-billion-barrel increase to our estimated net resources in the two basins, which now total more than 5 billion BOE. This proven performance, continuing efficiency gains and financial flexibility have us well positioned to deliver a compound annual oil growth rate of better than 15 percent over the next five years at current commodity prices while spending within cash inflows.”<sup>96</sup>

72. Internally, the Company generally attributed the earnings miss to the write-off and expenses related to Shenandoah. An April 21, 2017 email from Anadarko’s investor relations director Robin Fielder to Defendant Al Walker, *et al.* stated:

Recall that we stripped out the Eagleford and Marcellus from guidance which implied a loss of \$(0.53)/share. With those divested assets added back, the midpoint of our guidance suggests \$(0.23)/share. The street consensus is very close to this at \$(0.22)/share, however we should report adjusted earnings of \$(0.60)/share, *largely due to exploration expense associated with Shenandoah.*

\* \* \*

*The big driver of [the negative] EPS is the write-down of book value at Shenandoah.*<sup>97</sup>

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<sup>96</sup> May 2, 2017, Anadarko press release, “Anadarko Announces First-Quarter 2017 Results” (footnote omitted). The press release also included a table with financial and operating guidance for 2Q2017 and FY2017.

<sup>97</sup> APC-00735955.

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73. On May 2, 2017, an RBC Capital Markets analyst report on Anadarko characterized the core 1Q2017 results as “good.” It stated:

Core results look good but results at Shenandoah and the well incident in the DJ could cause some market concern.

**Core operations look good but earnings below expectations.** APC reported 1Q17 recurring EPS/CFPS of (\$0.60)/\$1.84 below our estimates of (\$0.24)/\$2.12 and the Street consensus of (\$0.23)/\$1.98. We adjusted our CFPS estimate by \$323 million directly related to the tax impact on the asset sales. E&P capital of \$969 million, excluding WES, was below our \$992 million estimate and near the low-end of the \$950-1,150 million guidance range.

\* \* \*

**2017 Guidance maintained.** There were no material changes to the \$4.5-4.7 billion capital budget and 644-655 Mboe/d production guidance. The 2Q17 production is 626-648 Mboe/d - production is expected to trend down 5% sequentially into 2Q17 related to Gulf of Mexico maintenance activity and prep-work for future well tie-ins. We expect onshore growth to continue its growth pattern, up 3% sequentially.<sup>98</sup>

74. On May 2, 2017, a BMO Capital Markets analyst report on Anadarko with the headline “1Q in Line, 2Q Lower but Full Year Unchanged; Shenandoah Appraisal Suspended.” It stated:

**1Q Mostly in line.** Anadarko reported 1Q17 EPS of -\$0.60, below our/consensus -\$0.29/-\$0.23. EBITDAX of \$1,615mm was above our/consensus \$1,390mm/\$1,447mm, while CFO of \$1,123mm (\$423mm working capital) was above our/consensus \$1,072mm/\$1,092mm (EBITDAX/CFO aren’t divestiture adjusted). Total production (divestiture adjusted) of 672MBoe/d was in the upper half of guidance (655-678MBoe/d), but below our/consensus (median) 675MBoe/d/677MBoe/d. Oil of 353MBoe/d was at the midpoint (351-356MBoe/d), but below our/consensus (median) 358MBoe/d. DJ, Delaware, and International volumes were in line with our model, while GOM was below. Capex (excluding WES) of \$969mm, was at the low end of guidance (\$950-1,150mm). Other U.S. onshore

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<sup>98</sup> May 2, 2017, RBC Capital Markets analyst report on Anadarko, “Market Focus May Be Elsewhere.”

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capex of \$138mm (\$123mm in 4Q) suggests continued investment in exploration opportunities.<sup>99</sup>

75. On May 2, 2017, a Bank of America analyst report on Anadarko also characterized the 1Q2017 operating results as “solid.” It stated:

**Messy quarter masks solid operating quarter**

EPS of (\$0.60) missed consensus of a (\$0.23), but includes approximately \$350mm after tax write off (\$0.64) of its Shenandoah discovery in the US GoM, not stripped out as a special item. Adjusted for what is to us a non-recurring item, 1Q17 looks like a break even quarter but still messy given assets held for sale. At the operating level “same store” sales production of 672,000 boepd was in the top half of guidance with all major metrics either in line or ahead. With that said, operating cashflow at \$1.1 bn looks in line with consensus albeit with offsetting puts and takes from the timing of deferred taxes and working capital contributions. Asset sales added \$2.8bn of cash to the balance sheet with all other cash items netting to zero, leaving APC with about \$6bn of available cash at end-1Q17 and in a strong position to execute the early part of its strategy of “at least” 15% oil CAGR, within cashflow, over the next five years.<sup>100</sup>

76. On May 2, 2017, a Cowen analyst report on Anadarko also characterized the 1Q2017 operating results as “strong.” It stated:

Operations were strong with divestiture adjusted 2Q17 total production of 672 Mboe/d slightly above our estimate of 670 Mboe/d (excluding Marcellus and Eagle Ford volumes), but APC missed earnings expectations due to lower than anticipated realizations and writedown of the Shenandoah prospect.<sup>101</sup>

77. On May 2, 2017, 2017, a Credit Suisse analyst report on Anadarko characterized the 1Q2017 results as “strong.” It stated:

- **Bottom Line:** Let’s be clear, APC had a strong quarter with volumes at the upper end of guidance, EBITDAX ahead and capex at the lower end.

<sup>99</sup> May 2, 2017, BMO Capital Markets analyst report on Anadarko, “1Q in Line, 2Q Lower but Full Year Unchanged; Shenandoah Appraisal Suspended.”

<sup>100</sup> May 2, 2017, Bank of America analyst report on Anadarko, “1Q17 recap: last messy quarter of the ‘old’ portfolio: rate of change ahead.”

<sup>101</sup> May 2, 2017, Cowen analyst report on Anadarko, “1Q17 Earnings at a Glance.”

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Cashflow was slightly below our expectations due to below the line items.<sup>102</sup>

78. On May 2, 2017, a Raymond James analyst report on Anadarko characterized the 1Q2017 EBITDA results as a “beat.” It stated:

**Anadarko reports a beat on EBITDA:** Anadarko reported a beat on production for the first quarter at 794.8 MBoe/d vs RJ at 758.3 MBoe/d and the Street at 733.7 MBoe/d. Further, EBITDA came in above expectations at \$1,615 million vs RJ at \$1,483 million and consensus at \$1,466 million. Driving the beat was the above-mentioned production beat as well as strong cost controls. We should note that the majority of the beat was driven by gas volumes (1,859 MMcf/d vs Street expectations at 1,530 MMcf/d, with liquids production roughly in line. Specifically, LOE came in at \$3.61/Boe vs RJ at \$3.90/Boe while G&A was reported at \$3.76/Boe vs our expectation for \$3.96/Boe. Additionally, pricing beat on each product, with NGL pricing beating our expectation by 17% (\$27.17/Bbl vs RJ at \$23.30/Bbl). We should note that non-GAAP EPS of (\$0.60) missed RJ/Street expectations of (\$0.24). Driving the miss were after-tax impairments of almost \$600 million.<sup>103</sup>

79. On May 2, 2017, a J.P. Morgan analyst report on Anadarko characterized the 1Q2017 results as “solid.” It stated:

**JPM View: Stock Reaction-Mixed.** Despite solid 1Q17 results (production and EBITDAX beat relative to our model) and the reiteration of its recently provided full-year guidance during the March analyst call, we expect a mixed reaction to the print given the weaker Q217 guide owing to GoM shut-ins for well tie-ins and maintenance and lingering uncertainty associated with the home explosion incident in the DJ Basin.<sup>104</sup>

80. On the morning of May 3, 2017, Anadarko held a conference call with analysts. On the call, the Company was asked to explain the apparent weakness of the 2Q2017 guidance relative to the FY2017 guidance that was maintained. According to the Company, the lower 2Q2017

<sup>102</sup> May 2, 2017, J.P. Morgan analyst report on Anadarko, “Exploration Expense Drives Miss, Volumes Should Rise in 2H, Colorado in Focus.”

<sup>103</sup> May 2, 2017, Raymond James analyst report on Anadarko, “1Q17 Quick Take: Anadarko Reports Solid First Quarter.”

<sup>104</sup> May 2, 2017, J.P. Morgan analyst report on Anadarko, “1Q17 Flash: Unfortunately, It’s Deja Vu All Over Again; Stock Reaction Mixed – ALERT.”

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guidance related to the timing of maintenance and did not impact FY2017 guidance. The conference call transcript states:

**[Arun Jayaram of JPMorgan:]** I was wondering, Al, if you could talk a little bit the 2Q guide. I mean, I know you reiterated your full year guide, but the 2Q guide was a little bit below where The Street was at, and I just wondered if you could maybe comment on that as well as your confidence in reaching your year-end growth targets in the Delaware and the DJ.

**[R.A. Walker, Chairman, President & Chief Executive Officer:]** Well, actually, I appreciate you asking the question, Arun. As you know, we guide for a full year, and it's really left up to the respective individuals as they write their own research to do what they believe are our quarter-to-quarter results. Consequently, by reaffirming what we think we will see for the year, I think we're saying is that we're not really as worried as some about the sequential progression from first to second quarter. That progression was expected, and consequently, the performance we see, in particular, out of our onshore U.S. assets is quite strong, so there's no read-through of concern there. It's really more – we don't guide quarter-to-quarter and respect the fact that that's a job that's difficult to do for those of you that write research on us and others. But from our perspective, the sequential decline was anticipated.

**[Arun Jayaram of JPMorgan:]** And what was the driver of the sequential decline, Al?

**[R.A. Walker, Chairman, President & Chief Executive Officer:]** Well, so I'm going to let Darrell address that if I can. It's really more related to maintenance.

**[Derrell E. Hollek, Executive Vice President, Operations:]** Yes, Arun, that's really almost all related to maintenance here in the Gulf of Mexico and some of our bigger facilities. But again, to Al's point, that has been scheduled, and it's baked in our numbers all along. So it doesn't change our year-end guidance, but it was part of what we expected on a quarter-on-quarter basis.<sup>105</sup>

81. Based on my review of the evidence, including the above summary, it is my opinion that Anadarko's 1Q2017 results (excluding Shenandoah) were generally viewed positively (*e.g.*, as "good," "in-line," "solid," "strong," or a "beat"), while its FY2017 guidance that was maintained, thereby generally meeting or exceeding expectations (with possibly lower than

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<sup>105</sup> May 3, 2017, Anadarko conference call, "Q1 2017 Anadarko Petroleum Corp Earnings Call," at 6-7.

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expected 2Q2017 guidance explained by the timing of maintenance). Consequently, in my opinion, the 1Q2017 results and FY2017 guidance, in aggregate, would be expected to have a neutral to slightly positive impact on Anadarko's stock price and, therefore, did not cause Anadarko's statistically significant price decline on May 3, 2017.

### **3. The April and May, 2017 “Firestone” News**

82. On April 17, 2017, a single-family home in Firestone, Colorado, was destroyed by an explosion, killing two men inside the home. On April 26, 2017, Anadarko issued a press release, linking the explosion to an Anadarko well approximately 200 feet from the explosion, and announcing a proactive measure of investigating 3,000 wells of the same vintage in northeast Colorado. The press release stated:

While there is still much that is not yet known regarding the potential contributing factors, Anadarko operates an older vertical well that was drilled by a previous operator in 1993 and is located approximately 200 feet from where the home was recently built. As such, the company has been working cooperatively with fire officials and state regulatory agencies in their investigations since the time of the accident.

While these events remain under active investigation and much remains to be determined, in an abundance of caution, since the company operates more than 3,000 producing vertical wells of the same vintage, it has taken proactive measures to shut in all vertical wells across the counties in northeast Colorado where it operates. The wells will remain shut in until the company's field personnel can conduct additional inspections and testing of the associated equipment, such as facilities and underground lines associated with each wellhead. Particular focus is being placed on areas where housing and commercial developments are occurring in close proximity to existing infrastructure. The wells will not be restarted until each has undergone and passed these additional inspections. Anadarko currently anticipates the process will take two to four weeks, depending on weather. The wells currently account for total production of about 13,000 net barrels of oil equivalent per day.<sup>106</sup>

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<sup>106</sup> April 26, 2017, Anadarko press release, “Anadarko Issues Statement Regarding Colorado Operations.”

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83. On April 27, 2017, an Evercore analyst report on Anadarko discussed the potential impact of the Firestone Explosion on the Company (impact of the “shut-in production and any physical remediation is likely immaterial”), that there is “no immediate threat to the environment or public safety associated with oil and gas operations in the neighborhood,” and that other Colorado operators exposed to potential regulatory responses may also be negatively impacted. It stated:

APC released a statement yesterday evening that caught the market (and us) off guard. The stock underperformed by 300 bps (vs. XOP) today in a tough tape for the broader sector. Unknowns remain in regards to the causes and implications of the proactive announcement by APC and the event in question. Our view is that while the value implication directly associated with the shut-in production and any physical remediation is likely immaterial for APC, and the market likely overreacted to the tangible value implication of the incident today, information flow may remain uneven near-term and the precise facts surrounding the incident remain unclear. We look forward to clarity from the Colorado regulatory authorities and APC when available (APC reports 1Q results, Tuesday May 2nd, AMC).

\* \* \*

- On the day of the explosion APC, PUC, and public utility personnel all responded. COGCC responded the following day (April 18th) and has been on the scene every weekday since. Since then COGCC environmental staff responded to gather environmental samples at the site of the explosion and has tested for fugitive methane or other hydrocarbons in the neighborhood. COGCC noted that “based on all of its investigations it believes there is no immediate threat to the environment or public safety associated with oil and gas operations in the neighborhood” and also that pending a more complete understanding of the circumstances involved, COGCC would consider other near-term actions that could be required by operators either field-wide or state-wide to address any ‘specific issues’ identified by the investigation.

\* \* \*

DJ basin exposed peers underperformed today on sympathy (NBL, SRC, XOG, PDCE). With setbacks in urban areas a ballot issue in previous elections, an area of focus will likely be any change in forward regulations. Current set back rules stipulate horizontal wells must be set back 500+ ft.<sup>107</sup>

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<sup>107</sup> April 27, 2017, Evercore analyst report on Anadarko, “APC Colorado Shut-ins.”

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84. On April 27, 2017, a Capital One analyst report on Anadarko characterized the potential production impact of Anadarko's shut-in as "negligible." It stated:

- **Upshot: Following a home explosion, APC shut in ~3,000 producing vertical wells in Wattenberg that account for ~2% of APC's company-wide production.** APC estimates 2 - 4 weeks of downtime. Assuming a 4-week outage, it would impact our 2Q production est of 645 Mboe/d by -0.7% and our FY17 est of 695 Mboe/d by a negligible -0.2%.<sup>108</sup>

85. On April 27, 2017, a J.P. Morgan analyst report on Anadarko characterized the potential financial impact of Anadarko's shut-in as "modest," and reiterated the fire department's conclusion that there was "'no threat to surrounding homes.'" It stated:

While there are a significant number of unknowns at this point, we believe there are two facts that are important from an APC shareholder standpoint: (1) while the home where the incident occurred was located approximately 200 ft from the legacy well that is operated by APC, the home was built more than 20 years after the well was placed onto production in 1993. Based on the facts in the case, there does not appear to be a violation of the 500 ft setback rules by APC; (2) a statement from local officials and the fire department have determined that there is "no threat to surrounding homes" near the incident, which suggests to us that the legacy well may not have been leaking prior to the incident.

\* \* \*

- **Financial impact appears modest, assuming APC is not at fault:** Exercising an abundance of caution, APC has decided to shut-in approximately 3,000 vertical wells of the same vintage (~13 MBoe/d of production) to inspect associated equipment and flow lines. This process is expected to take approximately 2 to 4 weeks to complete. Assuming the production is offline for 1 month, this would negatively impact our 2017 CFPS estimate by less than 1%.<sup>109</sup>

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<sup>108</sup> April 27, 2017, Capital One analyst report on Anadarko, "APC Reports Downtime in Wattenberg."

<sup>109</sup> April 27, 2017, J.P. Morgan analyst report on Anadarko, "Lots of Unknowns, But Two Key Facts from DJ Basin Incident - ALERT."

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86. On April 27, 2017, a Morgan Stanley analyst report on Anadarko characterized the potential cash flow impact of Anadarko's shut-in as "modest," but that the incident could negatively impact the regulatory environment for Colorado operators. It stated:

**What is the impact?** APC estimates the production impact is 13,000boed net, 75% of it gas while the wells remain shut-in for inspection. We estimate the cash flow impact is modest given higher gas cuts. The broader impact is unclear as the cause of the fire is unknown. The explosion, if caused directly or indirectly, by oil and gas activity, could negatively impact the Colorado energy regulatory environment. . . . Overhang of the potential regulatory response will likely remain until the cause of the fire has been determined and disclosed by authorities given the DJ is a core region to APC (4,000+ drilling locations and 1.5+Bn Boe of resource).<sup>110</sup>

87. On April 27, 2017, a Wells Fargo analyst report on Anadarko discussed the potential impact of the Firestone Explosion on the Company (shut-in impact "not that meaningful") and the Colorado energy regulatory environment ("overhang" on stock price of Anadarko and other DJ producers). It stated:

In response to a tragic explosion that occurred in Firestone, CO on April 17, Anadarko has made the decision to shut-in 3,000 DJ Basin vertical wells which account for roughly 13 Mboe/d. While investigators believe they have determined the cause of the blast, that information has not been released. The explosion did occur about 200 feet from an operated APC legacy vertical well (1993 vintage), and the severe nature of the explosion (2 deaths) has prompted APC, out of "an abundance of caution," to inspect all field equipment associated with its vertical DJ Basin wells. This inspection, which includes underground lines, should take 2 - 4 weeks, and wells are expected to be placed back online following inspection.

Though 13 Mboe/d over a 2 - 4 week period is not that meaningful for APC volumes (774 Mboe/d in 4Q16) or cash flow, we believe there will be an overhang (concerns around regulatory and/or litigation) on shares until more clarity is reached. Other DJ producers that might feel some pressure resulting from this incident include NBL and PDCE and to a lesser extent XOG and SRCI. We recommend near-term caution until more definitive information is released with respect to what caused the accident.<sup>111</sup>

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<sup>110</sup> April 27, 2017, Morgan Stanley analyst report on Anadarko, "Colorado Uncertainty."

<sup>111</sup> April 27, 2017, Wells Fargo analyst report on Anadarko, "APC: Statement On Colorado Explosion."

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88. As discussed above, Anadarko's shut-in of the 3,000 Colorado Wells represented a temporary measure that only included a small fraction of the Company's oil and natural gas output, and would therefore only be expected to have a "modest" impact on the Company's cash flows and, thereby, stock price. A much greater threat was the potential regulatory responses in Colorado.<sup>112</sup> Further, the increased risk of tougher regulation for the industry would not only impact Anadarko but also other Colorado operators, such as the companies making up the Colorado Peer Group: Noble Energy, PDC Energy, SRC Energy, and Extraction Oil & Gas.<sup>113</sup>

89. Following the Company's April 26, 2017, disclosure, after the market closed, Anadarko's stock price declined to \$57.12 per share on April 27, 2017, from \$59.96 per share the prior day, a decline of \$2.84 per share or 4.7%, on volume of 14.1 million shares, or more than three times the median daily volume during the Class Period. An event study using the S&P 500 index as a proxy for the market and the E&P Peer Group index as a proxy for the general industry results in a statistically significant residual price decline for Anadarko at the 5% level, *i.e.*, the S&P 500 index and the E&P Peer Group index did not explain the price decline in Anadarko's stock price. However, the Colorado Peer Group index declined -4.4% on April 27, 2017, almost as much as Anadarko, and using the Colorado Peer Group index as a proxy for potential concerns regarding the Colorado regulatory environment (instead of the E&P Peer Group index) no longer results in a statistically significant residual price decline for Anadarko at the 5% level, or 10%

<sup>112</sup> May 2, 2017, *Bloomberg*, "Anadarko Profit Misses Estimates Even as Driller Boosts Output" ("Shares dropped last week [April 27, 2017] after the company said it would close 3,000 Colorado wells as part of an investigation into a deadly house explosion earlier in April. The wells represent a tiny fraction of Anadarko's oil and natural gas output, but the blast raises the risk of tougher regulation for the industry, analysts at Houston investment bank Tudor Pickering Holt & Co. said in an April 27 note.").

<sup>113</sup> See *supra*, ¶¶83, 87; April 27, 2017, Evercore analyst report on Anadarko, "APC Reports Downtime in Wallenberg"; April 27, 2017, Wells Fargo analyst report on Anadarko, "APC: Statement On Colorado Explosion."

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level for that matter.<sup>114</sup> This analysis is consistent with investors becoming concerned about the Colorado regulatory environment following the April 26, 2017 announcement, and confirms that the Colorado Peer Group index can be used to control for potential concerns regarding the Colorado regulatory environment.

90. On May 2, 2017, *The Denver Post* wrote an article with the headline: “Deadly Firestone explosion caused by odorless gas leaking from cut gas flow pipeline. Governor orders inspection of all oil and gas lines within 1,000 feet of occupied homes.” It stated:

A fatal house explosion was caused by odorless gas seeping from a cut-off underground pipeline into the house through French drains and a sump pit, Frederick-Firestone Fire Protection District chief Ted Poszywak said.

\* \* \*

Soon after the firefighters released their report Tuesday, Gov. John Hickenlooper ordered oil and gas companies statewide to inspect and pressure-test oil and gas flowlines within 1,000 feet of occupied buildings.

Hickenlooper said companies must make sure flowlines not in use are properly marked and capped, and that any abandoned flowline cut off underground is sealed.<sup>115</sup>

91. According to *The Denver Post* article, the fire department confirmed the Anadarko well was the source of the gas in the Firestone Explosion, although it was a severed pipeline that caused it, and that the adjacent homes were not in any danger.<sup>116</sup> Furthermore, no additional shut-

<sup>114</sup> As before, given that Extraction Oil & Gas only started to first trade on October 12, 2017, the control period for this new event study regression is not a full year, but the 134 trading days prior to April 27, 2017.

<sup>115</sup> May 2, 2017 (after the market closed at 4:51 p.m.), *The Denver Post*, “Deadly Firestone explosion caused by odorless gas leaking from cut gas flow pipeline. Governor orders inspection of all oil and gas lines within 1,000 feet of occupied homes,” <https://www.denverpost.com/2017/05/02/firestone-explosion-cause-cut-gas-line/>.

<sup>116</sup> *Id.* *The Denver Post* online article also included a video of the Frederick-Firestone Fire Department press conference during which its district chief Ted Poszywak also stated: “I want once again to reiterate that no adjacent homes are in any danger as a result of the severed line. . . .

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ins or other actions in response to the Firestone Explosion were announced by Anadarko, and there was no evidence provided of any wrongdoing by Anadarko. Instead, the response by Governor Hickenlooper, and others in the article increased analyst concerns regarding further regulatory actions in Colorado.<sup>117</sup>

92. On May 2, 2017, a Wells Fargo equity research report discussed the impact of the Firestone Explosion on the regulatory environment in Colorado and on Colorado operators in general, specifically those making up the Colorado Peer Group. It stated:

- **Uncertainty an Overhang on APC . . .** Preliminary findings of the Firestone Fire Department were that the “origin and cause of the explosion” was gas from an abandoned gas flowline, which was connected to a nearby Anadarko well. There has not yet been an assignment of negligence or fault determined (and we are not saying that we believe APC is guilty), but until more clarity is reached we see an overhang on APC shares.
- **. . . And Regulatory Concern could Pressure all DJ Players.** Our decision to move to the sidelines on our other previously Outperform rated DJ names, SRCI and XOG, reflects our belief that all DJ basin-exposed names will remain under pressure given the fear of a potential regulatory response. The other two prominent DJ players in our universe include Noble Energy (NBL, \$31.42) and PDC Energy (PDCE, \$54.77), both of which remain Market Perform rated. Of note, the Colorado Oil and Gas Conservation Commission (COGCC) has already issued operator notices requiring inspection of abandoned and existing flowlines, and we would expect further regulatory action from the COGCC moving forward. In addition, the incident also likely activates the anti-drilling contingent of the Colorado population.<sup>118</sup>

93. The next day, on May 3, 2017, Anadarko held a conference call with analysts during which the Company was asked questions about the Firestone Explosion:

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The adjacent well and all flowlines have been tested and verified in safe condition and the well remains in shut-off condition.” *Id.*

<sup>117</sup> *Id.* In addition to Governor John Hickenlooper, State Senator Matt Jones and the Sierra Club were cited in *The Denver Post* article.

<sup>118</sup> May 2, 2017, Wells Fargo equity research report, “E&P: Downgrading APC, SRCI, And XOG.”

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**[David Tameron of Wells Fargo:]** And now back to the DJ, just obviously a horrible situation with the incident out at Firestone. But if I think about – you guys shut in 3,000 vertical wells, and I think you said at the time that production was 13[ ,000 net barrels of oil equivalent] a day. If I start thinking about vertical production and just – does it make sense – economic sense, when we start talking about whatever inspections or mediations or go forward basis, does it make sense just to shut some of those wells in from an economic standpoint regardless of what the investigation finds?

**[R.A. Walker, Chairman, President & Chief Executive Officer:]** David, the best way I can answer your question is the way I answered one earlier. We are like others in our industry responding to what the governor requested last evening, and I really can't answer your question at this point other than to say, last week, we announced we shut in those 3,000 wells on an abundance of caution at that time. That was taking 13,000 barrel equivalents off the market, of which about 3/4 is natural gas. So beyond that, I really don't know anything I can tell you relative to the question you asked me.

\* \* \*

**[Evan Calio of Morgan Stanley:]** [I]f there were to be any regulatory change as a result, what is the sensitivity of your location count to any changes, if there were to be any changes in the setback performance, also observing what the apparent cause may or may not be[?]

**[R.A. Walker, Chairman, President & Chief Executive Officer:]** Well, Evan, at this point the rules and regulations promulgated by the regulator are what they are, and we're very much in compliance with those. For me to answer your question, I would have to understand what the regulator contemplate beyond what's in place today. So all I can say is that we're very compliant with the regulations that are being currently applied by the Colorado regulator.<sup>119</sup>

94. On May 3, 2017, a Credit Suisse analyst report on Anadarko explained that the cost of potential remedies was “manageable,” but the “larger risk” was the increased Colorado regulatory risk, such as more stringent setback rules. It stated:

- We estimate the cost of plugging and abandoning a well is around \$100k. One could take the number of flow lines, map which ones are close to habitation, suggest a percent might need some remediation and calculate a number. 14k total wells at APC \* 10% \* \$100k = \$140m. These are manageable costs versus the share price reaction. Again bear in mind that

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<sup>119</sup> May 3, 2017, Anadarko conference call, “Q1 2017 Anadarko Petroleum Corp Earnings Call,” at 11, 17.

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wells are subject to annual testing already. There will be appropriate compensation in addition.

- ***The larger risk would be whether Colorado introduce a setback rule*** which precludes new drilling, something the electorate recently rejected. The industry will clearly present the data from their annual integrity testing, and the current testing to assuage public opinion.<sup>120</sup>

95. On May 3, 2017, a Morgan Stanley analyst report on Anadarko also explained why the “broader and potentially larger impact, is the potential Colorado energy regulatory impact.” It stated:

- (1) The liability question is unclear and is predicate on whether the line was severed in connection in the new house construction or was a failure in the abandonment or monitoring process. . . .
- (2) The broader and potentially larger impact, is the potential Colorado energy regulatory impact is also unclear, yet more likely in some degree. Overhang of the potential regulatory response will likely remain until the liability has been determined and disclosed by authorities. . . .
- (3) The impact of production shut-ins is clearest and easiest to assess. APC estimates the production impact is 13,000 boed net, 75% of it gas, while the wells remain shut-in for inspection. APC expects this to last 3-4 weeks. We estimate the cash flow impact is modest given higher gas cuts.<sup>121</sup>

96. On May 3, 2017, a Guggenheim analyst report on Anadarko discussed the impact resulting from the regulatory ramifications of the Firestone Explosion. It stated:

The tragedy in Colorado on April 17 overshadows resource and operating momentum in the quarter as the company enters development mode in the Delaware basin and tinkers with a new completion design in the DJ basin. Shares could face headwinds until the regulatory ramifications are sorted out.<sup>122</sup>

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<sup>120</sup> May 3, 2017, Credit Suisse analyst report on Anadarko, “Colorado is Not Macondo” (emphasis added).

<sup>121</sup> May 3, 2017, Morgan Stanley analyst report on Anadarko, “1Q17: Headwinds Accumulate; Move to EW.”

<sup>122</sup> May 3, 2017, Guggenheim analyst report on Anadarko, “APC – No Rest for the Weary.”

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97. On May 3, 2017, a UBS analyst report on Anadarko also discussed the increased regulatory concerns. It stated:

[I]nvestigators confirmed the recent home explosion in Firestone, CO was caused by an abandoned, severed one inch gas line that was still connected to APC's nearby well & had not been sealed off properly (several uncertainties are still under investigation including when the line was cut, how it was cut, and who is responsible).

\* \* \*

- **Market concerns stem from Colorado's history of getting public pushback on oil and gas drilling in the state. . . .** Thus, the recent home explosion in Firestone, CO is prompting concerns that this tragedy will at a minimum raise operating costs and potentially embolden anti-development efforts similar to initiative #78.<sup>123</sup>

98. Based on my review of the evidence, including the above summary, it is my opinion that the update provided after the market closed on May 2, 2017, appears to have caused increased concerns regarding potentially new regulatory action in Colorado. This is further supported by the fact that the E&P Peer Group index slightly increased, while the Colorado Peer Group decreased. Consequently, below, I will use the Colorado Peer Group index, as opposed to the E&P Peer Group index, to control for industry factors, which would include factors related to the Colorado regulatory environment.

#### **4. May 3, 2017, Shenandoah Price Impact**

99. On May 3, 2017, Anadarko's stock price declined to \$51.95 per share, down from \$56.28 per share the prior day, a decline of \$4.33 per share, or -7.69%, on volume of 21.1 million shares, or approximately five times the median daily volume during the Class Period. Based on my review of the evidence, discussed above, it is my opinion that this decline in Anadarko's stock

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<sup>123</sup> May 3, 2017, UBS analyst report on Anadarko, "Large Exploration Expense Drives 1Q17 EPS/CFPS Miss but EBITDX Beats; Maintains 2017 Guidance."

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price was not caused by the Company's announcement of its 1Q2017 results, which absent the Shenandoah write-off and expenses, were generally viewed positively (*e.g.*, as "good," "in-line," "solid," "strong," or a "beat"), nor the Company's FY2017 guidance that was maintained, thereby generally meeting or exceeding expectations (with possibly lower than expected 2Q2017 guidance explained by the timing of its maintenance). Instead, it is my opinion that the decline in Anadarko's stock price was caused by: (a) the suspension of appraisal activities at the Shenandoah, including the resulting \$902 million write-off and expenses; and (b) increased concerns regarding the Colorado regulatory environment which would impact all Colorado operators. Consequently, to estimate the price impact of the Shenandoah disclosure, I performed an event study using the S&P 500 index as a proxy for market factors and the Colorado Peer Group index as a proxy for industry factors, including the Colorado regulatory environment. Based on this event study, I estimated the impact of the May 3, 2017, Shenandoah disclosure to be -3.42%, or negative \$1.92 per share, translating into a reduction of Anadarko's market capitalization by \$1,075 million.<sup>124</sup> This is further evidence that the Shenandoah disclosure contained value-relevant information that negatively impacted Anadarko's stock price.

### C. Loss Causation Conclusion

100. Based on the above, it is my opinion that: (a) Defendants' alleged scheme and misleading statements regarding the Shenandoah contained, or omitted, information that a reasonable investor would have wanted to consider prior to making an investment decision, and caused Anadarko's common stock to trade at artificially inflated prices during the Class Period; and (b) when Anadarko publicly disclosed the alleged truth regarding the Shenandoah after the

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<sup>124</sup> See *supra*, ¶45.

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market closed on May 2, 2017, and in the morning of May 3, 2017, Anadarko's stock price declined, causing Class members to suffer economic damages as a result of the alleged fraud.

## **IX. ECONOMIC FRAMEWORK TO QUANTIFY SECTION 10(b) DAMAGES**

101. The loss-causation section above focused on the existence of damages for Class members who purchased Anadarko's common stock during the Class Period. In this section I will discuss the quantification of the resulting Section 10(b) damages. It is my understanding that the so-called out-of-pocket methodology is the appropriate measure for calculating damages under Section 10(b) of the Securities Exchange Act of 1934. The out-of-pocket measure quantifies the damages based on the stock price inflation, *i.e.*, the amount Class members overpaid for their shares as a result of the alleged fraud. The event study damages framework, explained below, can be used to quantify Class-wide damages in this case. In addition, recoverable damages are limited by the Federal 90-Day Bounce Back Rule.

### **A. Section 10(b): Out-of-Pocket Damages**

102. Securities cases, such as this one, generally involve allegations that defendants misled investors, either by (a) making affirmatively false or misleading statements that concealed some material information, and/or (b) omitting material information. The material information concealed or omitted is commonly referred to as the alleged truth, or relevant truth. In an efficient market, concealing an alleged truth that is materially different than the public mix of information will distort the stock price and cause it to trade at artificially inflated prices. Investors who overpaid for their shares as a result of the artificially inflated prices are then damaged when the alleged truth is disclosed (or partially disclosed), and the stock price declines as a result. Consequently, quantifying the fraud-related portion of the price decline caused by the disclosure of the alleged truth, is key to quantifying Class-wide damages.

103. As noted in one frequently referenced academic article:

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The most common method of calculating damages in Rule 10b-5 cases is the out-of-pocket measure. This test fixes recovery as the difference between the purchase price and the value of the security at the date of purchase less the difference between the sale price and the value of the security at the date of sale.

\* \* \*

Once one calculates the value line, the measure of damages for an investor is simply the difference between the price and the value on the date of purchase, or, for plaintiffs who sold their securities before the corrective disclosure, the difference between the price inflation at the time of purchase and the price inflation at the time of sale. If the inflation at the time of sale equals or exceeds the inflation level on the purchase date, the investor has recouped his loss from the marketplace and has no claim for recovery of damages.<sup>125</sup>

104. For shares purchased during the Class Period and still owned at the end, the measure of out-of-pocket damages is simply the inflation at the time of purchase. In this case, for shares sold prior to the end of the Class Period, damages are zero. Furthermore, the recoverable damages are also limited by the Federal 90-Day Bounce Back Rule that became effective on January 1, 1996.

#### **B. Quantifying the Inflation**

105. The event study damages framework is a well-accepted framework for calculating class-wide damages in class action securities cases. First, the impact of the disclosure of the alleged truth (the event) on the stock price is quantified using an event study.<sup>126</sup> Second, this fraud-related impact is then used as the inflation from the misrepresentations concealing the alleged truth until its disclosure. Third, because each Class member purchased and/or sold their shares at market prices, after quantifying the inflation, the Class members' individual damages can now be calculated based on the inflation at the time of their respective purchases and sales.

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<sup>125</sup> Bradford Cornell & R. Gregory Morgan, *Using Finance Theory to Measure Damages in Fraud on the Market Cases*, 37 UCLA L. Rev. 883, 885-86 (June 1990).

<sup>126</sup> See Mitchell & Netter (1994), *supra* n.32.

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106. The quantification of the inflation in this case is first and foremost based on the abnormal return on May 3, 2017 of -3.42%. This translates into a dollar inflation of \$1.92 per share (May 2, 2017 closing price of \$56.28 per share times 3.42%). Since market, industry, and so-called “Firestone” factors are accounted for by the event study, there are no other material possibly confounding factors that could have explained Anadarko’s May 3, 2017 price decline. The inflation will therefore be based on the \$1.92 per share Company-specific price decline on May 3, 2017.<sup>127</sup> However, on July 26, 2016, after the market closed, Anadarko announced that it increased its working interest in Shenandoah from 30% to 33%.<sup>128</sup> Consequently, to account for this increase, I reduced the inflation in the early part of the Class Period from February 21, 2015 through July 26, 2016, to \$1.75 per share.<sup>129</sup> Also, recoverable damages are limited by the Federal 90-Day Bounce Back Rule.<sup>130</sup> See Exhibit D.

107. For shares purchased during the Class Period and still owned at the end, the measure of out-of-pocket damages is simply the inflation at the time of purchase. In this case, for shares

<sup>127</sup> Keeping the inflation constant on a dollar basis is the most common approach when quantifying Section 10(b) damages. An alternative to this approach is to use the -3.42% abnormal price decline as a constant percentage inflation. In other words, the inflation would be 3.42% of Anadarko’s stock price from July 27, 2016 through May 2, 2017, and 3.11% of Anadarko’s stock price from February 21, 2015 through July 26, 2016. The justification for doing so would be to account for market forces (e.g., oil & gas prices, etc.) operating on the fraud. Richard Kaplan, *et al.*, “Rediscovering the Economics of Loss Causation,” 6 J. Bus. & Sec. L. 93, 105 (2006). This alternative approach would lead to higher inflation (and thus damages) on most days during the Class Period.

<sup>128</sup> See *supra*, ¶22.

<sup>129</sup> (\$1.92 per share Company-specific price decline on May 3, 2017) divided by (33%) times (30%) = \$1.75 per share. Because the first alleged misrepresentation occurred after the market closed on February 20, 2015, the first day with inflation would be the next day, February 21, 2015.

<sup>130</sup> 15 U.S.C. §78u-4(e). According to this Rule, recoverable damages are limited to, either: (a) the purchase price per share less the average closing price from May 3, 2017 through the day of the sale, if sold on or prior to July 31, 2017; or (b) the purchase price less \$47.88 per share (90-day average closing price after the Class Period) if still retained at the end of July 31, 2017.

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sold prior to the end of the Class Period, damages are zero, as the inflation at the time of purchase is always equal to or less than the inflation at the time of sale. Furthermore, the recoverable damages are also limited by the Federal 90-Day Bounce Back Rule.<sup>131</sup>

Executed this 9th day of November, 2022, in San Diego, California.



BJORN I. STEINHOLT, CFA

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<sup>131</sup> 15 U.S.C. §78u-4(e). According to this Rule, recoverable damages are limited to, either: (a) the purchase price per share less the average closing price from May 3, 2017 through the day of the sale, if sold on or prior to July 31, 2017; or (b) the purchase price less \$47.88 per share (90-day average closing price after the Class Period) if still retained at the end of July 31, 2017.

## **EXHIBIT A**

## Bjorn I. Steinholt, CFA

**Caliber Advisors, Inc.**  
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[Bjorn@CaliberAdvisors.com](mailto:Bjorn@CaliberAdvisors.com)

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### **Employment History**

#### **Caliber Advisors, Inc.** *Managing Director* (2014 to present)

Caliber Advisors is a full-service valuation and economic consulting firm. Mr. Steinholt provides a broad range of capital markets consulting, including financial and economic analyses relating to mergers and acquisitions, initial public offerings, fairness opinions, structured finance, portfolio risk management, market structure, securities analysis and financial valuations, including litigation consulting and expert testimony relating to the economic issues that arise in large complex securities fraud cases.

#### **Financial Markets Analysis, LLC** *Principal* (2000 to 2014)

Financial Markets Analysis was a financial valuation and economic consulting firm that primarily focused on providing economic analyses and expert testimony relating to securities analysis and financial economics. Mr. Steinholt provided capital markets consulting, financial valuation services, and various litigation consulting and expert testimony in large complex securities fraud cases.

#### **Business Valuation Services, Inc. (subsidiary of CBIZ, Inc.)** *Principal* (1999 -2000) *Vice President* (1998-1999)

Business Valuation Services was a national full-service financial valuation firm. Mr. Steinholt provided valuations of businesses and financial securities, including common stock, warrants, options, preferred stock, debt instruments and partnership interests, as well as intangible assets such as patents, trademarks, software, customer lists, work-force and licensing agreements. Mr. Steinholt also provided litigation support in shareholder disputes.

**Princeton Venture Research, Inc.**  
Senior Vice President (1996-1998)  
Vice President (1993-1996)  
Financial Analyst (1990-1993)

Princeton Venture Research was a venture capital, investment banking and economic consulting firm. Mr. Steinholt provided various financial and economic analyses for venture capital, investment banking and consulting assignments, including shareholder disputes. Among other things, he helped identify and evaluate prospective emerging technology companies in need of venture capital funding.

**University of San Diego**  
Research Assistant, Graduate Fellow (1988-1989)

Mr. Steinholt assisted with research regarding the performance of international equity markets following the 1987 stock market crash. He also developed computer programs related to the portfolio theory, including risk minimization and portfolio optimization based on quadratic programming techniques.

**Educational Background**

- **Chartered Financial Analyst**  
CFA Institute, 1997
- **Master of International Business**  
University of San Diego, 1989
- **Sivilingeniør** - (Norwegian graduate level engineering designation)  
University of Trondheim, Norway, 1987
- **Bachelor of Science in Computer Science,  
Computer Science and Engineering**  
California State University, Long Beach, 1987

**Professional Affiliations**

- **Member, CFA Institute**
- **Member, Financial Analysts Society of San Diego**

## **Publications**

“Price Impact Analysis – Where The Halliburton Court Erred,” Expert Analysis Section, *Law360* (August 25, 2015).

## **Testimony**

*In re: New England Health, et al v. Qwest Comm Intl Inc, et al.*, Case No. 1:01-cv-01451 (United States District Court for the District of Colorado). QwestDex Hearing Testimony relating to Section 11 damages: January 28, 2003. Mr. Steinholt was retained to opine on potential Section 11 damages.

*In re: King, et al v. CBT Group PLC, et al.*, Case No. 98-cv-21014 (United States District Court, Northern District of California, San Jose Division). Deposition Testimony: November 5, 2003. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*In re: Employer-Teamsters Joint Council Pension Trust Fund v. America West Holding, et al.*, Case No. 99-cv-399 (United States District Court, District of Arizona). Deposition Testimony: October 28, 2004. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*In re: Howard Yue vs. New Focus*, Case No. CV808031 (Superior Court of the State of California, County of Santa Clara). Deposition Testimony: July 28, 2005. Mr. Steinholt was retained to opine on the potential damages and other economic issues relating to the defendants’ acquisition of Globe Y.Technology, Inc.

*In re: Howard Yue vs. New Focus*, Case No. CV808031 (Superior Court of the State of California, County of Santa Clara). Deposition Testimony: August 9, 2005. Mr. Steinholt was retained to opine on the potential damages and other economic issues relating to the defendants’ acquisition of Globe Y.Technology, Inc.

*In re: AB Liquidating Corp., fka Adaptive Broadband Corporation v. Ernst & Young, LLP* (American Arbitration Association). Arbitration, March 23, 2006. Mr. Steinholt was retained to analyze the share turnover in Adaptive Broadband Corporation in connection with the liquidation of the company’s assets.

*In re: AOL Time Warner, Inc. Securities and “ERISA” Litigation, Consolidated Opt-Out Action*, Case No. 1:06-cv-00695 (United States District Court, Southern District of New York). Deposition Testimony: September 28, 2006. Mr. Steinholt was retained to opine on materiality and loss causation in a Section 11 context.

*In re: Ohio Public Employees Retirement System vs. Richard Parsons, et al.*, Case No. 03-CVH07-7932 (Court of Common Pleas of Franklin County, Ohio). Deposition Testimony: March 22, 2007. Mr. Steinholt was retained to quantify Section 11 damages for various institutional investors.

*In re: Ryan v. Flowserve Corporation et al.*, Case No. 3:03-cv-01769 (United States District Court, Northern District of Texas, Dallas Division). Deposition Testimony: June 15, 2007. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*In re: Nursing Home Pension Fund et al v. Oracle Corporation et al.*, Case No. 3:01-cv-00988 (United States District Court, Northern District of California). Deposition Testimony: July 2, 2007. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*In re: Carson, et al v. Neopharm Inc, et al.*, Case No. 1:02-cv-02976 (United States District Court, Northern District of Illinois, Eastern Division). Deposition Testimony: January 22, 2008. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*In re: HealthSouth Corporation Securities Litigation*, Case No. 2:03-cv-01501-S (United States District Court, Northern District of Alabama, Southern Division). Deposition Testimony: February 1, 2008. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality and loss causation.

*In re: Robert Kelleher, et al. v. ADVO, Inc., et al.*, Case No. 3:06-cv-01422 (United States District Court, District of Connecticut). Deposition Testimony: September 16, 2008. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality and loss causation in a class certification context.

*In re: HealthSouth Corporation Securities Litigation*, Case No. 2:03-cv-01501-S (United States District Court, Northern District of Alabama, Southern Division). Deposition Testimony: January 30, 2009. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality and loss causation.

*In re: Huffy Corporation Securities Litigation*, Case No. 3:05-cv-00028 (United States District Court, Southern District of Ohio, Western Division (at Dayton)). Deposition Testimony: November 12, 2009. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and potential damages for lead plaintiff.

*Lori Weinrib v. The PMI Group, Inc. et al.*, Case No. 3:08-cv-01405, (United States District Court for the Northern District of California). Deposition Testimony: June 14, 2010. Mr. Steinholt was retained to opine on economic issues relating to market efficiency in a class certification context.

*Kenneth McGuire, et al. v. Dendreon Corporation, et al.*, Case No. 2:07-cv-00800 (United States District Court, Western District of Washington at Seattle). Deposition Testimony: June 18, 2010. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*City of Livonia Employees' Retirement System v. The Boeing Company et al.*, Case No. 1:09-cv-07143, (United States District Court, Northern District of Illinois, Eastern Division). Deposition Testimony: November 5, 2010. Mr. Steinholt was retained to opine on economic issues relating to market efficiency in a class certification context.

*Maureen Backe, et al. v. Novatel Wireless, Inc., et al.*, Case No. 08-cv-1689 (United States District Court, Southern District of California). Deposition Testimony: February 1, 2011. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*Paul Luman, et al. v. Paul G. Anderson, et al. (FCStone Group Securities Litigation)*, Case No. 4:08-cv-00514 (United States District Court, Western District of Missouri, Western Division). Deposition Testimony: January 5, 2012. Mr. Steinholt was retained to opine on economic issues relating to market efficiency in a class certification context.

*T Grocery & Food Employees Welfare Fund v. Regions Financial Corporation et al.*, Case No. 2:10-cv-02847 (United States District Court, Northern District of Alabama). Deposition Testimony: May 8, 2012. Mr. Steinholt was retained to opine on economic issues relating to market efficiency in a class certification context.

*City of Pontiac General Employee's Retirement System v. Lockheed Martin Corporation et al.*, Case No. 1:11-cv-05026, (United States District Court, Southern District of New York). Deposition Testimony: May 18, 2012. Mr. Steinholt was retained to opine on economic issues relating to market efficiency in a class certification context.

*United Food and Commercial Workers Union et al v. Chesapeake Energy Corporation et al.*, Case No. 5:09-cv-01114 (United States District Court, Western District of Oklahoma). Deposition Testimony: August 14, 2012. Mr. Steinholt was retained to opine on loss causation in a Section 11 context.

*City of Pontiac General Employee's Retirement System v. Lockheed Martin Corporation et al.*, Case No. 1:11-cv-05026, (United States District Court, Southern District of New York). Deposition Testimony: October 4, 2012. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*Western Pennsylvania Electrical Employees Pension Fund, et al. v. Dennis Alter, et al., (Advanta International Inc. Securities Litigation)* Case No. 2:09-cv-04730 (United States District Court, Eastern District of Pennsylvania). Deposition Testimony: May 1, 2013. Mr. Steinholt was retained to opine on economic issues relating to market efficiency in a class certification context.

*Southern Avenue Partners LP v. The Perot Family Trust et al., (Parkcentral Global Litigation)* Case No. 3:09-cv-00765 (United States District Court, Northern District of Texas, Dallas Division). Deposition Testimony: May 6, 2013. Mr. Steinholt was retained to opine on the calculation of potential damages.

*Maureen Backe, et al. v. Novatel Wireless, Inc., et al.*, Case No. 08-cv-1689 (United States District Court, Southern District of California). Deposition Testimony: June 25, 2013. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*Garden City Employees' Retirement System v. Psychiatric Solutions, Inc. et al.*, Civil Action No. 3:09-cv-00882 (United States District Court, Middle District of Tennessee, Nashville Division). Deposition Testimony: June 6, 2014. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*City of Pontiac General Employees' Retirement System v. Wal-Mart Stores, Inc. et al.*, Case No. 12-cv-05162 (United States District Court, Western District of Arkansas (Fayetteville)). Deposition Testimony: November 9, 2015. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Alan B. Marcus, et al. v. J.C. Penney Company, Inc., et al.*, Case No. 13-cv-00736 (United States District Court, Eastern District of Texas (Tyler Division)). Deposition Testimony: March 4, 2016. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Basis Yield Alpha Fund (Master) v. Goldman Sachs Group, Inc., et al.*, Index No: 652996/2011 (Supreme Court of the State of New York, County of New York). Deposition Testimony: April 1, 2016. Mr. Steinholt was retained to analyze loss causation related to two CDO-squared securities purchased by Basis Yield Alpha Fund (Master) from Goldman Sachs.

*John Sender v. Franklin Resources, Inc.*, Case No. 11-cv-03828 (United States District Court, Northern District of California). Deposition Testimony: June 17, 2016. Mr. Steinholt was retained to analyze ERISA damages related to plaintiff's participation in defendant's Employee Stock Ownership Plan.

*Alan Willis, et al. v. Big Lots, Inc., et al.*, Case No. 12-cv-00604 (United States District Court, Southern District of Ohio (Columbus)). Deposition Testimony: July 21, 2016. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*In re: Beaver County Employees Retirement Fund vs. Cyan, Inc., et al.*, Lead Case No. CGC-14-538355 (Superior Court of the State of California, County of San Francisco). Deposition Testimony: October 14, 2016. Mr. Steinholt was retained to opine on potential damages pursuant to §§11 and 12 of the Securities Act of 1933.

*In Re Willbros Group, Inc. Securities Litigation*, Case No. 14-cv-3084 (United States District Court, Southern District of Texas, Houston Division). Deposition Testimony: April 14, 2017. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Shankar v. Imperva, Inc. et al.*, Case No. 14-cv-01680 (United States District Court, Northern District of California (Oakland)). Deposition Testimony: May 5, 2017. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Glitz et al. v. Sandridge Energy Inc et al.*, Case No. 12-cv-01341 (United States District Court, Western District of Oklahoma). Deposition Testimony: May 3, 2018. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Gary Curran, et al. v. Freshpet, Inc., et al.*. Case No. 16-cv-02263 (United States District Court, District of New Jersey). Deposition Testimony: July 25, 2018. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Megan Villella , et al. v. Chemical & Mining Co. of Chile, Inc., et al.*, Case No. 15-cv-02106 (United States District Court, Southern District of New York). Deposition Testimony: November 9, 2018. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Glitz et al. v. Sandridge Energy Inc et al.*, Case No. 12-cv-01341 (United States District Court, Western District of Oklahoma). Deposition Testimony: June 12, 2019. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*Gary Curran, et al. v. Freshpet, Inc., et al.*. Case No. 16-cv-02263 (United States District Court, District of New Jersey). Deposition Testimony: June 27, 2019. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) and Section 11 damages.

*Scheufele et al v. Tableau Software, Inc. et al.*, Case No. 17-cv-05753 (United States District Court, Southern District of New York). Deposition Testimony: September 24, 2019. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Douglas S. Chabot, et al. v. Walgreens Boots Alliance, Inc., et al.*, Case No. 18-cv-02118 (United States District Court, Middle District of Pennsylvania). Deposition Testimony: October 11, 2019. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Jon D. Gruber, et al. v. Dakota Plains Holdings, Inc., et al.*, Case No. 16-cv-09727 (United States District Court, Southern District of New York). Deposition Testimony: July 2, 2020. Mr. Steinholt was retained to opine on economic issues relating to materiality, loss causation and Section 10(b) damages.

*Scheufele et al v. Tableau Software, Inc. et al.*, Case No. 17-cv-05753 (United States District Court, Southern District of New York). Deposition Testimony: July 28, 2020. Mr. Steinholt was retained to opine on economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*Purple Mountain Trust v. Wells Fargo & Company et al.*, Case No. 18-cv-03948 (United States District Court, Northern District of California). Deposition Testimony: November 13, 2020. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Gordon v. Vanda Pharmaceuticals Inc. et al.*, Case No. 19-cv-01108 (United States District Court, Eastern District of New York). Deposition Testimony: November 5, 2021. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Georgia Firefighters' Pension Fund v. Anadarko Petroleum Corporation et al.*, Case No. 20-cv-00576 (United States District Court, Southern District of Texas). Deposition Testimony: November 17, 2021. Mr. Steinholt was retained to opine on economic issues relating to market efficiency and the calculation of class-wide damages in a class certification context.

*Douglas S. Chabot, et al. v. Walgreens Boots Alliance, Inc., et al.*, Case No. 18-cv-02118 (United States District Court, Middle District of Pennsylvania). Deposition Testimony: January 14, 2022. Steinholt was retained to opine on opine economic issues relating to market efficiency, materiality, loss causation and Section 10(b) damages.

*Jon D. Gruber, et al. v. Dakota Plains Holdings, Inc., et al.*, Case No. 16-cv-09727 (United States District Court, Southern District of New York). Trial Testimony: June 9-10, 2022. Mr. Steinholt provided trial testimony on economic issues relating to loss causation and Section 10(b) damages.

*In re: Cloudera, Inc. Securities Litigation*, Lead Case No. CV348674 (Superior Court of the State of California, County of Santa Clara). Deposition Testimony: September 22, 2022. Mr. Steinholt was retained to opine on potential damages pursuant to §§11 and 12 of the Securities Act of 1933.

## **EXHIBIT B**

## Exhibit B

### Information Relied Upon

#### Case Documents

Amended Complaint for Violations of the Federal Securities Laws, dated August 17, 2020.

Memorandum and Order, dated January 19, 2021.

Defendants' Responses and Objections to Lead Plaintiff's First Set of Requests for Admissions, dated August 27, 2021.

Expert Report of Allen Ferrell, Ph.D., dated December 10, 2021.

Order of Class Certification, dated September 28, 2022.

October 26, 2022 Videotaped Dep. of Bob Gwin.

#### Filings with the Securities and Exchange Commission

Anadarko 2014 Form 10-K, filed with the SEC on February 20, 2015.

Anadarko 2015 Proxy Statement, filed with the SEC on March 20, 2015.

Anadarko 1Q2015 Form 10-Q, filed with the SEC on May 4, 2015.

Anadarko 2Q2015 Form 10-Q, filed with the SEC on July 28, 2015.

Anadarko 3Q2015 Form 10-Q, filed with the SEC on October 27, 2015.

Anadarko 2015 Form 10-K, filed with the SEC on February 17, 2016.

Anadarko 2016 Proxy Statement, filed with the SEC on March 18, 2016.

Anadarko 1Q2016 Form 10-Q, filed with the SEC on May 2, 2016.

Anadarko 2Q2016 Form 10-Q, filed with the SEC on July 26, 2016.

Anadarko S-3 Registration Statement, filed with the SEC on August 12, 2016.

Anadarko 3Q2016 Form 10-Q, filed with the SEC on October 31, 2016.

Anadarko 2016 Form 10-K, filed with the SEC on February 17, 2017.

Anadarko 2017 Proxy Statement, filed with the SEC on March 17, 2017.

Anadarko 1Q2017 Form 10-Q, filed with the SEC on May 2, 2017.

Anadarko 2Q2017 Form 10-Q, filed with the SEC on July 24, 2017.

Anadarko 3Q2017 Form 10-Q, filed with the SEC on October 31, 2017.

Anadarko 2017 Form 10-K, filed with the SEC on February 15, 2018.

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ConocoPhillips Form 8-K, Exhibit 99.1, filed with the SEC on May 2, 2017.

Noble Energy 2016 Form 10-K, filed with the SEC on February 14, 2017.

PDC Energy 2016 Form 10-K, filed with the SEC on February 28, 2017.

Extraction Oil & Gas, Inc. 2016 Form 10-K, filed with the SEC on March 13, 2017.

SRC Energy (formerly Synergy Resources Corporation) 2016 Form 10 K, filed with the SEC on February 23, 2017.

### Press Releases

May 6, 2009, Anadarko press release, “Anadarko Announces First Quarter Results.”

March 19, 2013, Anadarko press release, “Anadarko Announces Shenandoah Appraisal Well Encounters More than 1,000 Net Feet of Oil Pay.”

February 2, 2015, Anadarko press release, “Anadarko Announces 2014 Fourth-Quarter And Full-Year Results.”

May 4, 2015, Anadarko press release, “Anadarko Announces First-Quarter 2015 Results.”

July 16, 2015, ConocoPhillips press release, “ConocoPhillips Announces Dividend Increase and Reductions in Future Deepwater Exploration Spending.”

July 28, 2015, Anadarko press release, “Anadarko Announces Second-Quarter 2015 Results.”

October 27, 2015, Anadarko press release, “Anadarko Announces Third-Quarter 2015 Results.”

February 1, 2016, Anadarko press release, “Anadarko Announces 2015 Fourth-Quarter and Full-Year Results.”

April 26, 2017, Anadarko press release, “Anadarko Issues Statement Regarding Colorado Operations.”

May 2, 2016, Anadarko press release, “Anadarko Announces First-Quarter 2016 Results.”

July 26, 2016, Anadarko press release, “Anadarko Announces Second-Quarter 2016 Results.”

October 31, 2016, Anadarko press release, “Anadarko Announces Third-Quarter 2016 Results.”

January 31, 2017, Anadarko press release, “Anadarko Announces 2016 Fourth-Quarter and Full-Year Results.”

March 14, 2017, Cobalt press release, “Cobalt International Energy, Inc. Announces Fourth Quarter and Year End 2016 Results.”

April 26, 2017, Anadarko press release, “Anadarko Issues Statement Regarding Colorado Operations.”

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May 2, 2017, ConocoPhillips press release, “ConocoPhillips Reports First-Quarter 2017 Results.”

May 2, 2017, Anadarko press release, “Anadarko Announces First-Quarter 2017 Results.”

May 2, 2017, Anadarko press release, “Anadarko Issues Statement Regarding Firestone Accident.”

May 4, 2017, ConocoPhillips press release, “ConocoPhillips Provides Update to First-Quarter 2017 Results Based on Subsequent Partner Disclosures and Information” (emphasis added).

May 8, 2017, Cobalt press release, “Cobalt International Energy, Inc. Announces First Quarter 2017 Results.”

July 24, 2017, Anadarko press release, “Anadarko Announces Second-Quarter 2017 Results.”

October 31, 2017, Anadarko press release, ““Anadarko Announces Third-Quarter 2017 Results.””

February 6, 2018, Anadarko press release, ““Anadarko Announces 2017 Fourth-Quarter and Full-Year Results.””

### Conference Calls

February 3, 2015, Anadarko FY2014 conference call.

March 3, 2015, Anadarko Petroleum Corp 2015 Capital Program and Guidance Call.

May 5, 2015, Anadarko 1Q2015 conference call.

July 29, 2015, Anadarko 2Q2015 conference call.

October 28, 2015, Anadarko 3Q2015 conference call.

February 2, 2015, Anadarko FY2015 conference call.

May 3, 2016, Anadarko 1Q2016 conference call.

July 27, 2016, Anadarko 2Q2016 conference call.

October 11, 2016, Anadarko 3Q2016 conference call.

February 1, 2017, Anadarko FY2016 conference call.

March 14, 2017, Cobalt FY2016 conference call.

May 3, 2017, Anadarko 1Q2017 conference call.

May 8, 2017, Cobalt 1Q2017 conference call.

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#### News Articles

April 26, 2017, Bloomberg, “Anadarko Shuts Vertical Wells in Colorado After Home Explosion.”

May 2, 2017, Bloomberg, “Anadarko 1Q Adjusted Loss Per Share Wider Than Est.; Shares Fall.”

May 2, 2017, Bloomberg, “Anadarko Profit Misses Estimates Even as Driller Boosts Output.”

May 2, 2017, *The Denver Post*, “Deadly Firestone explosion caused by odorless gas leaking from cut gas flow pipeline. Governor orders inspection of all oil and gas lines within 1,000 feet of occupied homes.”

<https://www.denverpost.com/2017/05/02/firestone-explosion-cause-cut-gas-line/>.

May 3, 2017, Bloomberg, “Cobalt Intl Cut at Citi as Anadarko Suspends Shenandoah Work.”

May 3, 2017, Bloomberg, “Cobalt International Cut to ‘Market Perform’ at Bernstein; PT Lowered to \$1.20.”

#### Analyst Reports

February 2, 2015, Capital One Securities energy summary, “Morning Energy Summary.”

February 2, 2015, RBC analyst report on Anadarko, “APC – 4Q14 EPS Miss, but strong operation CFPS beat.”

February 2, 2015, UBS analyst report on Anadarko, “Messy 4Q EPS But Cash Flow and Production In Line; 2015 Guidance Deferred Until Analyst Day.”

February 2, 2015, Morgan Stanley analyst report on Anadarko, “4Q14 Misses but on Non-Cash.”

February 4, 2015, RBC analyst report on Anadarko, “Choosing Value/Flexibility Over Growth.”

March 3, 2015, Morgan Stanley analyst report on Anadarko, “NAm Shines, Positioned to Lead in Recovery.”

April 24, 2015, Jefferies analyst report on industry, “Oil & Gas Exploration & Production 1Q E&P EPS; Hot, Cold, Warm, Warmer.”

April 27, 2015, Cowen analyst report on Anadarko, “Initiation: Outperform- Assets Worthy of a Major.”

May 4, 2015, Morgan Stanley analyst report on Anadarko, “1Q15 Results: Delivering More for Less.”

June 1, 2015, Evercore analyst report on industry, “Oil & Gas Exploration & Production; Initiation of Coverage.”

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June 26, 2015, Bank of America analyst report on Anadarko, “Tales from the road: exploration is back!”

August 4, 2015, Emperial Capital analyst report on Anadarko, “Strong 2Q Results, but More Importantly, APC’s Continuum of Choices to Explore for and Develop Large, Long-Term Oil Projects Shined Through, and Our Bigger Investment Thesis Remains Valid and on Track—Maintaining Our Outperform Rating; Lowering Price Target to \$109 from \$117.”

August 17, 2015, Barclays analyst report on industry, “Review of Texas Trip to Meet with Executives at 6 E&Ps.”

October 21, 2015, Jefferies analyst report on industry, “Oil & Gas Exploration & Production 3Q EPS Preview, US Oil Rolling, Gas Capex Cuts.”

October 28, 2015, Morgan Stanley analyst report on Anadarko, “3Q15: Still Running Faster than the Bear.”

October 28, 2015, RBC analyst report on Anadarko, “Onshore Oil Growth Assets Outperform.”

November 12, 2015, Oppenheimer analyst report on Anadarko, “When A Prey Becomes A Predator, Valuation Suffers.”

December 9, 2015, J.P. Morgan analyst report on Anadarko, “Initiate at Neutral; Sidelines for Now on LNG ‘Air Pocket’.”

January 27, 2016, Evercore analyst report on Anadarko, “Lots of Moving Parts in 2016, Big Questions Looming in 2017+.”

February 2, 2016, UBS analyst report on Anadarko, “Preliminary 2016 Volume Guidance More Resilient Than Expectations; Raising 2016-17 CFPS Estimates.”

March 1, 2016, Bank of America analyst report on Anadarko, “2016 Guidance: enhancing the equity story, improving credit outlook.”

March 4, 2016, Deutsche Bank analyst report on Anadarko, “Asset Sales: It's What's for Lunch.”

April 11, 2016, Simmons analyst report on Anadarko, “Partner Sells Down Shenandoah Working Interest.”

April 21, 2016, J.P. Morgan analyst report on Anadarko, “Feedback from Recent Upgrade; Addressing the Bears on Jubilee and Heidelberg Production Issues.”

May 2, 2016, UBS analyst report on Anadarko, “1Q16 EPS, CFPS, and Production a Modest Beat; More Asset Sales Further Improve Liquidity.”

May 3, 2016, Morgan Stanley analyst report on Anadarko, “Uneventful yet Robust 1Q16.”

May 4, 2016, J.P. Morgan analyst report on Anadarko, “More Positives Than Negatives, But a Few Chinks in the Armor.”

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May 12, 2016, Simmons analyst report on Anadarko, "Q1'16 Review."

May 24, 2016, UBS analyst report on Anadarko, "Highlights from UBS Global Oil and Gas Conference."

June 1, 2016, Jefferies analyst report on Anadarko, "Thoughts from Investor Meetings; Capital Efficient 'Hub and Spoke' Model."

June 21, 2016, Bank of America analyst report on Anadarko, "Tales from the road: the case for regaining the valuation premium: raising PO to \$95."

June 9, 2016, Simmons analyst report on Anadarko, "Q2'16 Update--Assuming Coverage with OW Rating and \$64 Price Target."

July 26, 2016, Wells Fargo analyst report on Anadarko, "APC: Positive--Ops Strong, CFPS And EPS Beat."

July 27, 2016, Cowen analyst report on Anadarko, "2Q16 Earnings Review: Prepared for \$60/bbl."

July 27, 2016, UBS analyst report on Anadarko, "APC 2Q Beats, Raises Production Guidance, and Boosts Divestiture Target."

July 27, 2016, Morgan Stanley analyst report on Anadarko, "2Q16: Strong Start."

July 27, 2016, Deutsche Bank analyst report on Anadarko, "Strong Execution, But Where To From Here?"

July 28, 2016, Simmons analyst report on Anadarko, "Q2'16 Earnings Review: Improving Balance Sheet Through Divestitures."

August 1, 2016, MUFG analyst report on Anadarko, "Tempered Optimism -- Right Approach; Estimated Raised."

August 10, 2016, RBC analyst report on Anadarko, "Ready and Waiting."

September 8, 2016, Simmons analyst report on Anadarko, "Q3'16 Update: Attractive Valuation--Waiting on Catalysts."

September 27, 2016, J.P. Morgan analyst report on Anadarko, "Inside the Corner Suite with European Roadshow Takeaways; Confidence Grows on Relative Re-Rating Potential."

October 11, 2016, Morgan Stanley analyst report on Anadarko, "Notes From The Road: Top Pick Affirmation."

October 31, 2016, BMO analyst report on Anadarko, "GOM Drives 3Q Beat; Asset Sales Exceed Target."

October 31, 2016, Cowen analyst report on Anadarko, "Q3 Earnings at a Glance."

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October 31, 2016, J.P. Morgan analyst report on Anadarko, “3Q16 Flash; Upside Results and Portfolio Management Success; Going Out in Style – ALERT.”

October 31, 2016, Deutsche Bank analyst report on Anadarko, “Told Ya So: GoM, Delaware Lead Beat on Oil Vols.”

November 1, 2016, Morgan Stanley analyst report on Anadarko, “3Q16: Treat.”

November 2, 2016, Barclays analyst report on Anadarko, “APC Delivering on its 2016 Plan.”

January 29, 2017, RBC analyst report on Anadarko, “APC - 4Q16 Earnings Preview.”

January 31, 2017, Guggenheim analyst report on Anadarko, “APC - Clean, Lean Growth Machine.”

February 1, 2017, Cowen analyst report on Anadarko, “4Q16 Earnings Recap: APC, Easy As 1-2-3 Ds.”

February 1, 2017, UBS analyst report on Anadarko, “4Q Cash Flow and Production Beat Expectations; Focus Shifts to Investor Call on March 8th.”

February 2, 2017, Ladenburg Thalmann analyst report on Anadarko, “Q4 Conference Call Key Takeaways; Awaiting 2017 Guidance and Budget on March 7<sup>th</sup>”

February 5, 2017, Goldman Sachs analyst report on Anadarko, “Unappreciated GOM production profile to drive the next leg up, Buy.”

March 1, 2017, UBS analyst report on Anadarko, “Preview of Anadarko Petroleum's Investor Call.”

March 2, 2017, Barclays analyst report on Anadarko, “Lowering 2017-18 Oil Volumes In Front of Next Week's Guidance Call.”

March 6, 2017, Cowen analyst report on Anadarko, “APC March 8th Investor Conference Call Preview.”

March 6, 2017, Deutsche Bank analyst report on Anadarko, “Previewing APC's 2017 Outlook.”

March 7, 2017, Cowen analyst report on Anadarko, “APC 2017 Guidance Update: More Conservative than Expected.”

March 7, 2017, J.P. Morgan analyst report on Anadarko, “With Volume Guide in Rear View Mirror, Focus Shifts to Unique Oil Growth Runway and Plans for War Chest.”

March 8, 2017, BMO analyst report on Anadarko, “Slow Start in 2017; Long-Term Outlook Little Changed; Resource Potential Raised.”

March 8, 2017, UBS analyst report on Anadarko, “2017 Guidance Near UBSe But Trimming 2018-19E CFPS; APC Raises Delaware and DJ Resource Base.”

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March 8, 2017, Evercore analyst report on Anadarko, "Strong Story Setting a Lower 2017 Bar."

March 8, 2017, Deutsche Bank analyst report on Anadarko, "Being Resource-Full Above All Else?"

March 9, 2017, Ladenburg Thalmann analyst report on Anadarko, "Management Meeting Highlights; Transitioning to Development in Delaware Basin."

March 9, 2017, KLR Group analyst report on Anadarko, "Slightly Higher Oil Composition Offsets Higher Operating Expense."

March 9, 2017, MUFG analyst report on Anadarko, "Building a Loving (and Ward) System Key to Delaware Growth Plans."

March 13, 2017, Cowen analyst report on Anadarko, "APC Guidance Recap: 2017 Building For Strong 2018 Growth."

March 16, 2017, RBC analyst report on Anadarko, "The Plan Has Come Together."

March 24, 2017, Goldman Sachs analyst report on Anadarko, "Mgmt meeting highlights focus on E&P/midstream growth; Buy."

March 31, 2017, Cowen & Co. analyst report on Cobalt, "Recap from the Road."

April 27, 2017, Evercore analyst report on Anadarko, "APC Colorado Shut-ins."

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## Exhibit B

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## Exhibit B

### Information Relied Upon

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### Information Relied Upon

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APC-00734803; APC-00735955; APC-00737640; APC-00302750; APC-00288721;  
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### Data

*Bloomberg*: price, volume and other trading information for Anadarko common stock, market and industry indices, peer group companies and oil prices.

## **EXHIBIT C**

## Anadarko Securities Litigation

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### Event Study Regression for May 3, 2017

REGRESSION OUTPUT	
<i>Regression Statistics</i>	
Adjusted R Square	75.23%
Standard Error	0.97%
Observations (1)	138
<i>Coefficients</i>	
Intercept	(0.000)
S&P 500	0.189
Colorado Peer Group	0.797

Date	APC Closing Price	APC Return	S&P 500	Colorado Peer Group (2)	Predicted Return	Abnormal Return	\$ Impact	t-statistic
May 2, 2017	\$56.28	-0.69%	0.12%	-1.02%				
May 3, 2017	\$51.95	-7.69%	-0.11%	-5.30%	-4.28%	-3.42%	(\$1.92)	(3.52)

(1) Control period spans the 138 available trading days prior to the event (May 3, 2017)

(2) Equally weighted index of Colorado operators: Noble Energy, PDC Energy, SRC Energy and Extraction Oil & Gas

(3) t-statistic of (3.52), statistically significant at the 1% level

## **EXHIBIT D**

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
2/20/2015	3,749,883	\$85.45	-0.75%		\$0.00	\$85.45	
2/23/2015	3,861,869	\$85.52	0.08%		\$1.75	\$83.77	
2/24/2015	3,003,344	\$85.89	0.43%		\$1.75	\$84.14	
2/25/2015	3,190,496	\$86.41	0.61%		\$1.75	\$84.66	
2/26/2015	4,002,373	\$85.24	-1.35%		\$1.75	\$83.49	
2/27/2015	6,321,673	\$84.23	-1.18%		\$1.75	\$82.48	
3/2/2015	6,564,662	\$82.02	-2.62%		\$1.75	\$80.27	
3/3/2015	5,506,768	\$82.78	0.93%		\$1.75	\$81.03	
3/4/2015	3,426,730	\$83.35	0.69%		\$1.75	\$81.60	
3/5/2015	3,312,179	\$82.84	-0.61%		\$1.75	\$81.09	
3/6/2015	5,386,879	\$81.73	-1.34%		\$1.75	\$79.98	
3/9/2015	3,296,411	\$80.77	-0.84%		\$1.75	\$79.02	
3/10/2015	4,617,143	\$78.99	-2.20%		\$1.75	\$77.24	
3/11/2015	3,134,550	\$79.49	0.63%		\$1.75	\$77.74	
3/12/2015	2,972,525	\$78.19	-1.64%		\$1.75	\$76.44	
3/13/2015	3,577,865	\$78.42	0.29%		\$1.75	\$76.67	
3/16/2015	4,590,672	\$80.64	2.83%		\$1.75	\$78.89	
3/17/2015	6,100,955	\$80.44	-0.25%		\$1.75	\$78.69	
3/18/2015	5,485,446	\$82.59	2.67%		\$1.75	\$80.84	
3/19/2015	4,001,142	\$80.43	-2.62%		\$1.75	\$78.68	
3/20/2015	5,062,910	\$81.95	1.89%		\$1.75	\$80.20	
3/23/2015	3,865,744	\$81.04	-1.11%		\$1.75	\$79.29	
3/24/2015	3,503,918	\$81.41	0.46%		\$1.75	\$79.66	
3/25/2015	4,056,799	\$82.34	1.14%		\$1.75	\$80.59	
3/26/2015	4,060,903	\$83.20	1.04%		\$1.75	\$81.45	
3/27/2015	2,432,362	\$82.19	-1.21%		\$1.75	\$80.44	
3/30/2015	2,828,757	\$83.85	2.02%		\$1.75	\$82.10	
3/31/2015	2,397,928	\$82.81	-1.24%		\$1.75	\$81.06	
4/1/2015	4,170,372	\$83.86	1.27%		\$1.75	\$82.11	
4/2/2015	3,567,863	\$84.55	0.82%		\$1.75	\$82.80	
4/6/2015	3,250,781	\$85.86	1.55%		\$1.75	\$84.11	
4/7/2015	3,518,976	\$85.44	-0.49%		\$1.75	\$83.69	
4/8/2015	5,908,806	\$86.12	0.80%		\$1.75	\$84.37	
4/9/2015	5,976,704	\$88.90	3.23%		\$1.75	\$87.15	
4/10/2015	4,061,904	\$90.10	1.35%		\$1.75	\$88.35	
4/13/2015	4,299,731	\$88.68	-1.58%		\$1.75	\$86.93	
4/14/2015	4,113,429	\$90.83	2.42%		\$1.75	\$89.08	
4/15/2015	7,222,503	\$94.54	4.08%		\$1.75	\$92.79	
4/16/2015	5,076,531	\$93.94	-0.63%		\$1.75	\$92.19	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
4/17/2015	6,560,651	\$93.68	-0.28%		\$1.75	\$91.93	
4/20/2015	7,866,624	\$93.66	-0.02%		\$1.75	\$91.91	
4/21/2015	3,091,857	\$92.56	-1.17%		\$1.75	\$90.81	
4/22/2015	2,651,577	\$93.04	0.52%		\$1.75	\$91.29	
4/23/2015	2,639,294	\$93.46	0.45%		\$1.75	\$91.71	
4/24/2015	3,426,548	\$92.65	-0.87%		\$1.75	\$90.90	
4/27/2015	2,424,079	\$93.16	0.55%		\$1.75	\$91.41	
4/28/2015	2,251,433	\$93.66	0.54%		\$1.75	\$91.91	
4/29/2015	3,339,185	\$93.90	0.26%		\$1.75	\$92.15	
4/30/2015	5,498,374	\$94.10	0.21%		\$1.75	\$92.35	
5/1/2015	2,211,910	\$93.92	-0.19%		\$1.75	\$92.17	
5/4/2015	5,065,535	\$93.73	-0.20%		\$1.75	\$91.98	
5/5/2015	9,411,401	\$89.32	-4.71%		\$1.75	\$87.57	
5/6/2015	4,731,354	\$89.66	0.38%		\$1.75	\$87.91	
5/7/2015	5,234,333	\$88.77	-0.99%		\$1.75	\$87.02	
5/8/2015	5,394,347	\$88.56	-0.24%		\$1.75	\$86.81	
5/11/2015	4,053,931	\$86.32	-2.53%		\$1.75	\$84.57	
5/12/2015	4,337,104	\$86.19	-0.15%		\$1.75	\$84.44	
5/13/2015	4,198,950	\$85.11	-1.25%		\$1.75	\$83.36	
5/14/2015	3,154,919	\$84.49	-0.73%		\$1.75	\$82.74	
5/15/2015	4,536,728	\$84.67	0.21%		\$1.75	\$82.92	
5/18/2015	3,169,627	\$84.98	0.37%		\$1.75	\$83.23	
5/19/2015	4,105,895	\$83.56	-1.67%		\$1.75	\$81.81	
5/20/2015	2,629,964	\$83.40	-0.19%		\$1.75	\$81.65	
5/21/2015	3,907,136	\$85.60	2.64%		\$1.75	\$83.85	
5/22/2015	4,026,816	\$86.17	0.67%		\$1.75	\$84.42	
5/26/2015	3,598,686	\$84.18	-2.31%		\$1.75	\$82.43	
5/27/2015	3,492,098	\$84.15	-0.04%		\$1.75	\$82.40	
5/28/2015	3,087,900	\$83.92	-0.27%		\$1.75	\$82.17	
5/29/2015	4,045,241	\$83.61	-0.37%		\$1.75	\$81.86	
6/1/2015	2,830,521	\$83.84	0.28%		\$1.75	\$82.09	
6/2/2015	2,995,050	\$84.79	1.13%		\$1.75	\$83.04	
6/3/2015	4,360,170	\$83.92	-1.03%		\$1.75	\$82.17	
6/4/2015	2,284,962	\$83.40	-0.62%		\$1.75	\$81.65	
6/5/2015	3,000,129	\$84.49	1.31%		\$1.75	\$82.74	
6/8/2015	3,846,817	\$82.96	-1.49%		\$1.75	\$81.21	
6/9/2015	4,515,623	\$83.22	0.31%		\$1.75	\$81.47	
6/10/2015	2,120,108	\$84.61	1.67%		\$1.75	\$82.86	
6/11/2015	1,845,108	\$83.93	-0.80%		\$1.75	\$82.18	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
6/12/2015	3,578,569	\$83.12	-0.97%		\$1.75	\$81.37	
6/15/2015	1,892,500	\$82.67	-0.54%		\$1.75	\$80.92	
6/16/2015	1,515,221	\$83.61	1.14%		\$1.75	\$81.86	
6/17/2015	2,008,813	\$83.03	-0.69%		\$1.75	\$81.28	
6/18/2015	2,408,410	\$82.89	-0.17%		\$1.75	\$81.14	
6/19/2015	4,028,878	\$81.82	-1.29%		\$1.75	\$80.07	
6/22/2015	2,007,299	\$81.97	0.18%		\$1.75	\$80.22	
6/23/2015	1,941,031	\$82.22	0.31%		\$1.75	\$80.47	
6/24/2015	3,847,381	\$81.45	-0.94%		\$1.75	\$79.70	
6/25/2015	3,039,708	\$80.73	-0.88%		\$1.75	\$78.98	
6/26/2015	3,973,846	\$81.36	0.78%		\$1.75	\$79.61	
6/29/2015	3,931,862	\$78.59	-3.40%		\$1.75	\$76.84	
6/30/2015	4,270,814	\$78.06	-0.67%		\$1.75	\$76.31	
7/1/2015	5,155,217	\$77.18	-1.13%		\$1.75	\$75.43	
7/2/2015	3,474,390	\$76.78	-0.52%		\$1.75	\$75.03	
7/6/2015	3,967,671	\$76.38	-0.52%		\$1.75	\$74.63	
7/7/2015	5,979,068	\$77.92	2.02%		\$1.75	\$76.17	
7/8/2015	3,653,087	\$75.47	-3.14%		\$1.75	\$73.72	
7/9/2015	3,703,230	\$76.08	0.81%		\$1.75	\$74.33	
7/10/2015	3,381,679	\$75.71	-0.49%		\$1.75	\$73.96	
7/13/2015	3,480,853	\$75.70	-0.01%		\$1.75	\$73.95	
7/14/2015	5,639,051	\$76.37	0.89%		\$1.75	\$74.62	
7/15/2015	4,723,560	\$75.20	-1.53%		\$1.75	\$73.45	
7/16/2015	4,296,594	\$74.69	-0.68%		\$1.75	\$72.94	
7/17/2015	4,012,775	\$73.88	-1.08%		\$1.75	\$72.13	
7/20/2015	4,795,648	\$72.62	-1.71%		\$1.75	\$70.87	
7/21/2015	4,907,584	\$73.37	1.03%		\$1.75	\$71.62	
7/22/2015	5,266,989	\$72.66	-0.97%		\$1.75	\$70.91	
7/23/2015	3,054,196	\$72.54	-0.17%		\$1.75	\$70.79	
7/24/2015	3,418,825	\$71.61	-1.28%		\$1.75	\$69.86	
7/27/2015	4,734,234	\$69.99	-2.26%		\$1.75	\$68.24	
7/28/2015	6,230,040	\$72.85	4.09%		\$1.75	\$71.10	
7/29/2015	7,818,149	\$76.28	4.71%		\$1.75	\$74.53	
7/30/2015	3,999,753	\$76.63	0.46%		\$1.75	\$74.88	
7/31/2015	4,025,825	\$74.35	-2.98%		\$1.75	\$72.60	
8/3/2015	3,829,043	\$73.22	-1.52%		\$1.75	\$71.47	
8/4/2015	4,208,724	\$74.30	1.48%		\$1.75	\$72.55	
8/5/2015	3,898,475	\$74.01	-0.39%		\$1.75	\$72.26	
8/6/2015	5,069,360	\$76.15	2.89%		\$1.75	\$74.40	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
8/7/2015	4,695,127	\$73.05	-4.07%		\$1.75	\$71.30	
8/10/2015	3,446,750	\$75.70	3.63%		\$1.75	\$73.95	
8/11/2015	3,653,885	\$75.47	-0.30%		\$1.75	\$73.72	
8/12/2015	6,202,713	\$78.10	3.48%		\$1.75	\$76.35	
8/13/2015	4,298,692	\$76.24	-2.38%		\$1.75	\$74.49	
8/14/2015	4,219,125	\$76.25	0.01%		\$1.75	\$74.50	
8/17/2015	2,399,754	\$76.54	0.38%		\$1.75	\$74.79	
8/18/2015	2,545,928	\$76.64	0.13%		\$1.75	\$74.89	
8/19/2015	7,351,775	\$72.38	-5.56%		\$1.75	\$70.63	
8/20/2015	6,733,187	\$71.05	-1.84%		\$1.75	\$69.30	
8/21/2015	6,927,000	\$68.78	-3.19%		\$1.75	\$67.03	
8/24/2015	11,059,381	\$65.55	-4.70%		\$1.75	\$63.80	
8/25/2015	5,022,645	\$63.99	-2.38%		\$1.75	\$62.24	
8/26/2015	6,274,936	\$65.16	1.83%		\$1.75	\$63.41	
8/27/2015	9,017,982	\$69.01	5.91%		\$1.75	\$67.26	
8/28/2015	6,647,098	\$70.94	2.80%		\$1.75	\$69.19	
8/31/2015	7,077,086	\$71.58	0.90%		\$1.75	\$69.83	
9/1/2015	5,283,636	\$68.29	-4.60%		\$1.75	\$66.54	
9/2/2015	4,221,792	\$69.53	1.82%		\$1.75	\$67.78	
9/3/2015	4,016,702	\$69.51	-0.03%		\$1.75	\$67.76	
9/4/2015	3,385,990	\$68.34	-1.29%		\$1.75	\$66.59	
9/8/2015	3,565,578	\$69.70	1.99%		\$1.75	\$67.95	
9/9/2015	4,004,504	\$67.20	-3.59%		\$1.75	\$65.45	
9/10/2015	4,137,509	\$67.21	0.01%		\$1.75	\$65.46	
9/11/2015	4,574,475	\$65.65	-2.32%		\$1.75	\$63.90	
9/14/2015	3,587,806	\$65.00	-0.99%		\$1.75	\$63.25	
9/15/2015	2,571,376	\$65.72	1.11%		\$1.75	\$63.97	
9/16/2015	4,678,656	\$69.14	5.20%		\$1.75	\$67.39	
9/17/2015	6,232,864	\$68.57	-0.82%		\$1.75	\$66.82	
9/18/2015	6,832,618	\$65.47	-4.52%		\$1.75	\$63.72	
9/21/2015	2,564,573	\$65.86	0.60%		\$1.75	\$64.11	
9/22/2015	2,781,073	\$64.81	-1.59%		\$1.75	\$63.06	
9/23/2015	4,733,317	\$63.18	-2.52%		\$1.75	\$61.43	
9/24/2015	3,459,562	\$63.70	0.82%		\$1.75	\$61.95	
9/25/2015	4,251,918	\$62.67	-1.62%		\$1.75	\$60.92	
9/28/2015	6,347,243	\$59.43	-5.17%		\$1.75	\$57.68	
9/29/2015	4,435,947	\$59.04	-0.66%		\$1.75	\$57.29	
9/30/2015	3,989,049	\$60.39	2.29%		\$1.75	\$58.64	
10/1/2015	4,083,759	\$60.95	0.93%		\$1.75	\$59.20	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
10/2/2015	5,264,105	\$64.11	5.18%		\$1.75	\$62.36	
10/5/2015	5,365,071	\$66.49	3.71%		\$1.75	\$64.74	
10/6/2015	4,978,473	\$68.65	3.25%		\$1.75	\$66.90	
10/7/2015	5,304,896	\$69.14	0.71%		\$1.75	\$67.39	
10/8/2015	7,104,999	\$72.33	4.61%		\$1.75	\$70.58	
10/9/2015	5,409,998	\$72.40	0.10%		\$1.75	\$70.65	
10/12/2015	4,138,040	\$71.09	-1.81%		\$1.75	\$69.34	
10/13/2015	2,961,209	\$70.58	-0.72%		\$1.75	\$68.83	
10/14/2015	4,428,094	\$71.57	1.40%		\$1.75	\$69.82	
10/15/2015	4,103,884	\$72.96	1.94%		\$1.75	\$71.21	
10/16/2015	4,414,027	\$73.39	0.59%		\$1.75	\$71.64	
10/19/2015	4,051,128	\$72.31	-1.47%		\$1.75	\$70.56	
10/20/2015	2,910,530	\$73.29	1.36%		\$1.75	\$71.54	
10/21/2015	2,753,957	\$71.55	-2.37%		\$1.75	\$69.80	
10/22/2015	3,318,670	\$73.00	2.03%		\$1.75	\$71.25	
10/23/2015	4,558,041	\$72.03	-1.33%		\$1.75	\$70.28	
10/26/2015	4,820,992	\$69.00	-4.21%		\$1.75	\$67.25	
10/27/2015	8,163,419	\$65.29	-5.38%		\$1.75	\$63.54	
10/28/2015	7,213,311	\$65.55	0.40%		\$1.75	\$63.80	
10/29/2015	6,891,954	\$67.58	3.10%		\$1.75	\$65.83	
10/30/2015	5,663,857	\$66.88	-1.04%		\$1.75	\$65.13	
11/2/2015	4,522,142	\$67.38	0.75%		\$1.75	\$65.63	
11/3/2015	6,343,931	\$70.84	5.14%		\$1.75	\$69.09	
11/4/2015	4,940,115	\$70.22	-0.88%		\$1.75	\$68.47	
11/5/2015	3,208,362	\$70.10	-0.17%		\$1.75	\$68.35	
11/6/2015	3,723,498	\$68.60	-2.14%		\$1.75	\$66.85	
11/9/2015	3,369,583	\$67.90	-1.02%		\$1.75	\$66.15	
11/10/2015	17,835,781	\$63.42	-6.60%		\$1.75	\$61.67	
11/11/2015	13,250,350	\$61.01	-3.80%		\$1.75	\$59.26	
11/12/2015	9,299,955	\$58.50	-4.11%		\$1.75	\$56.75	
11/13/2015	9,381,682	\$60.05	2.65%		\$1.75	\$58.30	
11/16/2015	7,089,698	\$62.11	3.43%		\$1.75	\$60.36	
11/17/2015	7,130,047	\$61.12	-1.59%		\$1.75	\$59.37	
11/18/2015	4,020,746	\$61.74	1.01%		\$1.75	\$59.99	
11/19/2015	5,114,302	\$59.64	-3.40%		\$1.75	\$57.89	
11/20/2015	4,338,024	\$58.74	-1.51%		\$1.75	\$56.99	
11/23/2015	6,585,389	\$60.35	2.74%		\$1.75	\$58.60	
11/24/2015	5,438,328	\$62.02	2.77%		\$1.75	\$60.27	
11/25/2015	2,784,863	\$61.13	-1.44%		\$1.75	\$59.38	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
11/27/2015	2,304,930	\$60.71	-0.69%		\$1.75	\$58.96	
11/30/2015	5,533,085	\$59.90	-1.33%		\$1.75	\$58.15	
12/1/2015	5,338,914	\$60.50	1.00%		\$1.75	\$58.75	
12/2/2015	6,525,633	\$58.77	-2.86%		\$1.75	\$57.02	
12/3/2015	6,107,945	\$58.14	-1.07%		\$1.75	\$56.39	
12/4/2015	8,315,611	\$56.81	-2.29%		\$1.75	\$55.06	
12/7/2015	11,092,713	\$53.68	-5.03%		\$1.75	\$51.93	
12/8/2015	9,576,471	\$51.82	-3.47%		\$1.75	\$50.07	
12/9/2015	8,609,648	\$50.83	-1.91%		\$1.75	\$49.08	
12/10/2015	8,363,900	\$51.23	0.79%		\$1.75	\$49.48	
12/11/2015	9,869,764	\$49.55	-3.28%		\$1.75	\$47.80	
12/14/2015	11,824,846	\$47.59	-3.96%		\$1.75	\$45.84	
12/15/2015	7,060,402	\$48.80	2.54%		\$1.75	\$47.05	
12/16/2015	7,657,622	\$47.67	-2.32%		\$1.75	\$45.92	
12/17/2015	13,563,465	\$46.73	-1.97%		\$1.75	\$44.98	
12/18/2015	8,659,164	\$45.67	-2.27%		\$1.75	\$43.92	
12/21/2015	13,333,245	\$46.55	1.93%		\$1.75	\$44.80	
12/22/2015	11,511,431	\$48.55	4.30%		\$1.75	\$46.80	
12/23/2015	8,278,780	\$51.50	6.08%		\$1.75	\$49.75	
12/24/2015	2,691,620	\$51.22	-0.54%		\$1.75	\$49.47	
12/28/2015	4,945,236	\$49.69	-2.99%		\$1.75	\$47.94	
12/29/2015	3,188,020	\$49.73	0.08%		\$1.75	\$47.98	
12/30/2015	3,534,793	\$48.38	-2.71%		\$1.75	\$46.63	
12/31/2015	3,672,312	\$48.58	0.41%		\$1.75	\$46.83	
1/4/2016	5,909,308	\$49.13	1.13%		\$1.75	\$47.38	
1/5/2016	4,130,002	\$48.52	-1.24%		\$1.75	\$46.77	
1/6/2016	10,750,092	\$43.77	-9.79%		\$1.75	\$42.02	
1/7/2016	13,733,204	\$40.11	-8.36%		\$1.75	\$38.36	
1/8/2016	11,345,620	\$40.56	1.12%		\$1.75	\$38.81	
1/11/2016	10,090,936	\$37.75	-6.93%		\$1.75	\$36.00	
1/12/2016	25,166,307	\$37.33	-1.11%		\$1.75	\$35.58	
1/13/2016	15,524,658	\$34.86	-6.62%		\$1.75	\$33.11	
1/14/2016	15,146,697	\$35.00	0.40%		\$1.75	\$33.25	
1/15/2016	15,072,222	\$32.02	-8.51%		\$1.75	\$30.27	
1/19/2016	13,316,079	\$30.85	-3.65%		\$1.75	\$29.10	
1/20/2016	16,346,359	\$30.54	-1.00%		\$1.75	\$28.79	
1/21/2016	11,363,212	\$33.55	9.86%		\$1.75	\$31.80	
1/22/2016	13,440,831	\$35.48	5.75%		\$1.75	\$33.73	
1/25/2016	9,761,636	\$32.31	-8.93%		\$1.75	\$30.56	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
1/26/2016	10,236,943	\$34.59	7.06%		\$1.75	\$32.84	
1/27/2016	10,505,460	\$35.53	2.72%		\$1.75	\$33.78	
1/28/2016	12,159,688	\$37.25	4.84%		\$1.75	\$35.50	
1/29/2016	9,588,350	\$39.09	4.94%		\$1.75	\$37.34	
2/1/2016	9,735,242	\$38.25	-2.15%		\$1.75	\$36.50	
2/2/2016	16,811,930	\$39.26	2.64%		\$1.75	\$37.51	
2/3/2016	14,322,918	\$42.49	8.23%		\$1.75	\$40.74	
2/4/2016	13,684,732	\$41.36	-2.66%		\$1.75	\$39.61	
2/5/2016	8,552,952	\$40.77	-1.43%		\$1.75	\$39.02	
2/8/2016	8,300,482	\$40.05	-1.77%		\$1.75	\$38.30	
2/9/2016	12,085,704	\$37.24	-7.02%		\$1.75	\$35.49	
2/10/2016	10,903,111	\$37.39	0.40%		\$1.75	\$35.64	
2/11/2016	16,470,278	\$35.68	-4.57%		\$1.75	\$33.93	
2/12/2016	7,516,975	\$37.81	5.97%		\$1.75	\$36.06	
2/16/2016	6,102,323	\$39.09	3.39%		\$1.75	\$37.34	
2/17/2016	10,239,547	\$40.50	3.61%		\$1.75	\$38.75	
2/18/2016	11,707,987	\$37.03	-8.57%		\$1.75	\$35.28	
2/19/2016	12,914,962	\$35.35	-4.54%		\$1.75	\$33.60	
2/22/2016	7,094,628	\$37.35	5.66%		\$1.75	\$35.60	
2/23/2016	6,104,428	\$35.30	-5.49%		\$1.75	\$33.55	
2/24/2016	8,671,634	\$36.21	2.58%		\$1.75	\$34.46	
2/25/2016	8,422,895	\$37.64	3.95%		\$1.75	\$35.89	
2/26/2016	7,059,736	\$38.02	1.01%		\$1.75	\$36.27	
2/29/2016	7,924,190	\$37.95	-0.18%		\$1.75	\$36.20	
3/1/2016	10,922,066	\$40.11	5.69%		\$1.75	\$38.36	
3/2/2016	9,839,747	\$42.65	6.33%		\$1.75	\$40.90	
3/3/2016	9,478,145	\$42.98	0.77%		\$1.75	\$41.23	
3/4/2016	13,165,306	\$45.26	5.30%		\$1.75	\$43.51	
3/7/2016	9,934,588	\$45.10	-0.24%		\$1.75	\$43.35	
3/8/2016	7,708,058	\$41.14	-8.78%		\$1.75	\$39.39	
3/9/2016	7,703,333	\$42.32	2.87%		\$1.75	\$40.57	
3/10/2016	7,037,015	\$42.50	0.43%		\$1.75	\$40.75	
3/11/2016	14,798,338	\$46.29	8.92%		\$1.75	\$44.54	
3/14/2016	6,291,621	\$46.31	0.04%		\$1.75	\$44.56	
3/15/2016	5,491,523	\$47.02	1.53%		\$1.75	\$45.27	
3/16/2016	9,017,663	\$48.71	3.59%		\$1.75	\$46.96	
3/17/2016	6,830,758	\$49.26	1.13%		\$1.75	\$47.51	
3/18/2016	10,288,354	\$48.76	-1.02%		\$1.75	\$47.01	
3/21/2016	5,803,845	\$48.61	-0.31%		\$1.75	\$46.86	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
3/22/2016	4,666,366	\$48.01	-1.23%		\$1.75	\$46.26	
3/23/2016	6,318,950	\$46.29	-3.58%		\$1.75	\$44.54	
3/24/2016	9,106,981	\$46.27	-0.04%		\$1.75	\$44.52	
3/28/2016	6,189,351	\$45.63	-1.38%		\$1.75	\$43.88	
3/29/2016	5,442,996	\$46.23	1.31%		\$1.75	\$44.48	
3/30/2016	5,345,369	\$46.39	0.35%		\$1.75	\$44.64	
3/31/2016	5,755,311	\$46.57	0.39%		\$1.75	\$44.82	
4/1/2016	3,379,912	\$45.81	-1.63%		\$1.75	\$44.06	
4/4/2016	4,417,957	\$44.59	-2.66%		\$1.75	\$42.84	
4/5/2016	4,394,366	\$44.10	-1.10%		\$1.75	\$42.35	
4/6/2016	9,776,929	\$45.71	3.65%		\$1.75	\$43.96	
4/7/2016	4,398,898	\$45.75	0.09%		\$1.75	\$44.00	
4/8/2016	5,945,871	\$48.29	5.55%		\$1.75	\$46.54	
4/11/2016	4,063,930	\$47.53	-1.57%		\$1.75	\$45.78	
4/12/2016	5,954,414	\$50.11	5.43%		\$1.75	\$48.36	
4/13/2016	4,407,755	\$49.32	-1.58%		\$1.75	\$47.57	
4/14/2016	4,599,698	\$49.46	0.28%		\$1.75	\$47.71	
4/15/2016	4,429,114	\$48.91	-1.11%		\$1.75	\$47.16	
4/18/2016	4,671,202	\$50.13	2.49%		\$1.75	\$48.38	
4/19/2016	6,730,831	\$50.53	0.80%		\$1.75	\$48.78	
4/20/2016	6,909,763	\$50.66	0.26%		\$1.75	\$48.91	
4/21/2016	7,799,487	\$50.03	-1.24%		\$1.75	\$48.28	
4/22/2016	6,365,023	\$52.55	5.04%		\$1.75	\$50.80	
4/25/2016	5,187,068	\$51.09	-2.78%		\$1.75	\$49.34	
4/26/2016	5,383,425	\$52.36	2.49%		\$1.75	\$50.61	
4/27/2016	7,606,778	\$54.78	4.62%		\$1.75	\$53.03	
4/28/2016	4,145,440	\$53.20	-2.88%		\$1.75	\$51.45	
4/29/2016	5,051,354	\$52.76	-0.83%		\$1.75	\$51.01	
5/2/2016	5,067,521	\$51.95	-1.54%		\$1.75	\$50.20	
5/3/2016	9,411,226	\$50.10	-3.56%		\$1.75	\$48.35	
5/4/2016	9,231,029	\$47.02	-6.15%		\$1.75	\$45.27	
5/5/2016	9,415,787	\$46.10	-1.96%		\$1.75	\$44.35	
5/6/2016	5,660,297	\$46.56	1.00%		\$1.75	\$44.81	
5/9/2016	4,152,244	\$44.99	-3.37%		\$1.75	\$43.24	
5/10/2016	4,047,359	\$47.01	4.49%		\$1.75	\$45.26	
5/11/2016	4,912,373	\$47.92	1.94%		\$1.75	\$46.17	
5/12/2016	6,733,603	\$48.25	0.69%		\$1.75	\$46.50	
5/13/2016	6,062,778	\$47.72	-1.10%		\$1.75	\$45.97	
5/16/2016	7,049,727	\$49.17	3.04%		\$1.75	\$47.42	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
5/17/2016	4,180,841	\$49.74	1.16%		\$1.75	\$47.99	
5/18/2016	3,620,698	\$48.94	-1.61%		\$1.75	\$47.19	
5/19/2016	3,792,017	\$49.22	0.57%		\$1.75	\$47.47	
5/20/2016	3,119,409	\$49.30	0.16%		\$1.75	\$47.55	
5/23/2016	4,022,284	\$49.20	-0.20%		\$1.75	\$47.45	
5/24/2016	3,544,080	\$50.24	2.11%		\$1.75	\$48.49	
5/25/2016	6,274,351	\$52.09	3.68%		\$1.75	\$50.34	
5/26/2016	4,725,954	\$52.28	0.36%		\$1.75	\$50.53	
5/27/2016	3,883,872	\$51.53	-1.43%		\$1.75	\$49.78	
5/31/2016	4,306,422	\$51.86	0.64%		\$1.75	\$50.11	
6/1/2016	4,014,955	\$52.40	1.04%		\$1.75	\$50.65	
6/2/2016	3,713,739	\$51.69	-1.36%		\$1.75	\$49.94	
6/3/2016	3,144,888	\$51.44	-0.48%		\$1.75	\$49.69	
6/6/2016	3,572,628	\$53.28	3.67%		\$1.75	\$51.53	
6/7/2016	6,953,994	\$55.22	3.64%		\$1.75	\$53.47	
6/8/2016	4,169,057	\$55.18	-0.07%		\$1.75	\$53.43	
6/9/2016	2,959,924	\$54.48	-1.27%		\$1.75	\$52.73	
6/10/2016	5,043,275	\$53.00	-2.72%		\$1.75	\$51.25	
6/13/2016	3,904,249	\$53.08	0.15%		\$1.75	\$51.33	
6/14/2016	3,187,397	\$53.70	1.17%		\$1.75	\$51.95	
6/15/2016	2,955,006	\$53.38	-0.60%		\$1.75	\$51.63	
6/16/2016	4,468,980	\$53.30	-0.15%		\$1.75	\$51.55	
6/17/2016	4,845,146	\$54.86	2.93%		\$1.75	\$53.11	
6/20/2016	4,383,867	\$54.85	-0.02%		\$1.75	\$53.10	
6/21/2016	2,216,471	\$55.51	1.20%		\$1.75	\$53.76	
6/22/2016	2,390,798	\$54.39	-2.02%		\$1.75	\$52.64	
6/23/2016	3,792,940	\$55.52	2.08%		\$1.75	\$53.77	
6/24/2016	8,010,912	\$52.83	-4.85%		\$1.75	\$51.08	
6/27/2016	8,149,924	\$49.50	-6.30%		\$1.75	\$47.75	
6/28/2016	5,095,129	\$51.13	3.29%		\$1.75	\$49.38	
6/29/2016	5,373,529	\$53.19	4.03%		\$1.75	\$51.44	
6/30/2016	4,838,163	\$53.25	0.11%		\$1.75	\$51.50	
7/1/2016	4,387,319	\$54.89	3.08%		\$1.75	\$53.14	
7/5/2016	3,952,378	\$53.61	-2.33%		\$1.75	\$51.86	
7/6/2016	4,432,612	\$55.19	2.95%		\$1.75	\$53.44	
7/7/2016	4,874,013	\$55.22	0.05%		\$1.75	\$53.47	
7/8/2016	4,035,312	\$55.91	1.25%		\$1.75	\$54.16	
7/11/2016	2,990,400	\$55.86	-0.09%		\$1.75	\$54.11	
7/12/2016	4,353,944	\$57.42	2.79%		\$1.75	\$55.67	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
7/13/2016	4,856,777	\$56.10	-2.30%		\$1.75	\$54.35	
7/14/2016	3,397,409	\$55.52	-1.03%		\$1.75	\$53.77	
7/15/2016	4,280,089	\$55.01	-0.92%		\$1.75	\$53.26	
7/18/2016	4,760,512	\$55.10	0.16%		\$1.75	\$53.35	
7/19/2016	4,321,915	\$53.85	-2.27%		\$1.75	\$52.10	
7/20/2016	4,051,080	\$54.52	1.24%		\$1.75	\$52.77	
7/21/2016	3,979,044	\$54.17	-0.64%		\$1.75	\$52.42	
7/22/2016	3,342,718	\$54.64	0.87%		\$1.75	\$52.89	
7/25/2016	4,483,269	\$53.87	-1.41%		\$1.75	\$52.12	
7/26/2016	3,418,177	\$54.74	1.62%		\$1.75	\$52.99	
7/27/2016	5,664,609	\$53.80	-1.72%		\$1.92	\$51.88	
7/28/2016	6,067,778	\$53.36	-0.82%		\$1.92	\$51.44	
7/29/2016	5,355,308	\$54.53	2.19%		\$1.92	\$52.61	
8/1/2016	6,163,435	\$51.85	-4.91%		\$1.92	\$49.93	
8/2/2016	4,756,650	\$51.63	-0.42%		\$1.92	\$49.71	
8/3/2016	3,969,311	\$52.68	2.03%		\$1.92	\$50.76	
8/4/2016	5,453,744	\$51.27	-2.68%		\$1.92	\$49.35	
8/5/2016	6,992,495	\$52.77	2.93%		\$1.92	\$50.85	
8/8/2016	4,532,868	\$53.05	0.53%		\$1.92	\$51.13	
8/9/2016	5,028,816	\$52.75	-0.57%		\$1.92	\$50.83	
8/10/2016	3,563,552	\$52.63	-0.23%		\$1.92	\$50.71	
8/11/2016	3,675,303	\$54.01	2.62%		\$1.92	\$52.09	
8/12/2016	3,710,155	\$54.28	0.50%		\$1.92	\$52.36	
8/15/2016	2,877,512	\$54.60	0.59%		\$1.92	\$52.68	
8/16/2016	3,929,361	\$54.15	-0.82%		\$1.92	\$52.23	
8/17/2016	2,522,516	\$54.38	0.42%		\$1.92	\$52.46	
8/18/2016	4,891,284	\$55.94	2.87%		\$1.92	\$54.02	
8/19/2016	3,165,448	\$54.83	-1.98%		\$1.92	\$52.91	
8/22/2016	3,158,955	\$54.27	-1.02%		\$1.92	\$52.35	
8/23/2016	3,421,917	\$56.05	3.28%		\$1.92	\$54.13	
8/24/2016	4,292,371	\$54.16	-3.37%		\$1.92	\$52.24	
8/25/2016	2,759,991	\$55.15	1.83%		\$1.92	\$53.23	
8/26/2016	2,594,481	\$55.26	0.20%		\$1.92	\$53.34	
8/29/2016	2,521,409	\$56.22	1.74%		\$1.92	\$54.30	
8/30/2016	3,252,923	\$55.78	-0.78%		\$1.92	\$53.86	
8/31/2016	5,256,689	\$53.47	-4.14%		\$1.92	\$51.55	
9/1/2016	5,195,640	\$53.54	0.13%		\$1.92	\$51.62	
9/2/2016	6,095,531	\$56.49	5.51%		\$1.92	\$54.57	
9/6/2016	3,586,960	\$57.19	1.24%		\$1.92	\$55.27	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
9/7/2016	4,185,021	\$57.18	-0.02%		\$1.92	\$55.26	
9/8/2016	4,277,848	\$59.06	3.29%		\$1.92	\$57.14	
9/9/2016	4,632,587	\$57.77	-2.18%		\$1.92	\$55.85	
9/12/2016	3,139,417	\$57.79	0.12%		\$1.92	\$55.87	
9/13/2016	33,186,622	\$57.59	-0.35%		\$1.92	\$55.67	
9/14/2016	14,741,610	\$55.62	-3.42%		\$1.92	\$53.70	
9/15/2016	6,970,935	\$56.93	2.36%		\$1.92	\$55.01	
9/16/2016	5,478,011	\$57.52	1.04%		\$1.92	\$55.60	
9/19/2016	4,816,145	\$57.52	0.00%		\$1.92	\$55.60	
9/20/2016	6,383,619	\$58.28	1.32%		\$1.92	\$56.36	
9/21/2016	8,091,508	\$61.06	4.77%		\$1.92	\$59.14	
9/22/2016	8,906,607	\$61.21	0.25%		\$1.92	\$59.29	
9/23/2016	11,432,700	\$59.50	-2.79%		\$1.92	\$57.58	
9/26/2016	5,942,349	\$58.54	-1.61%		\$1.92	\$56.62	
9/27/2016	6,082,682	\$58.27	-0.46%		\$1.92	\$56.35	
9/28/2016	7,397,551	\$61.27	5.15%		\$1.92	\$59.35	
9/29/2016	9,805,566	\$62.58	2.14%		\$1.92	\$60.66	
9/30/2016	8,027,580	\$63.36	1.25%		\$1.92	\$61.44	
10/3/2016	4,690,830	\$63.42	0.09%		\$1.92	\$61.50	
10/4/2016	6,739,515	\$63.47	0.08%		\$1.92	\$61.55	
10/5/2016	5,628,023	\$64.14	1.06%		\$1.92	\$62.22	
10/6/2016	4,537,658	\$63.85	-0.45%		\$1.92	\$61.93	
10/7/2016	2,689,157	\$63.46	-0.61%		\$1.92	\$61.54	
10/10/2016	3,255,747	\$64.39	1.47%		\$1.92	\$62.47	
10/11/2016	4,677,665	\$63.72	-1.04%		\$1.92	\$61.80	
10/12/2016	3,210,593	\$63.93	0.33%		\$1.92	\$62.01	
10/13/2016	3,800,773	\$64.07	0.22%		\$1.92	\$62.15	
10/14/2016	2,592,322	\$63.37	-1.09%		\$1.92	\$61.45	
10/17/2016	3,829,603	\$62.51	-1.36%		\$1.92	\$60.59	
10/18/2016	2,830,088	\$62.97	0.74%		\$1.92	\$61.05	
10/19/2016	3,814,669	\$63.93	1.52%		\$1.92	\$62.01	
10/20/2016	5,115,718	\$63.76	-0.27%		\$1.92	\$61.84	
10/21/2016	4,063,470	\$63.54	-0.35%		\$1.92	\$61.62	
10/24/2016	3,030,534	\$62.99	-0.87%		\$1.92	\$61.07	
10/25/2016	3,414,275	\$61.05	-3.08%		\$1.92	\$59.13	
10/26/2016	5,089,744	\$60.90	-0.25%		\$1.92	\$58.98	
10/27/2016	7,811,691	\$61.42	0.85%		\$1.92	\$59.50	
10/28/2016	5,738,248	\$61.46	0.07%		\$1.92	\$59.54	
10/31/2016	5,883,774	\$59.44	-3.29%		\$1.92	\$57.52	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
11/1/2016	7,891,559	\$59.95	0.86%		\$1.92	\$58.03	
11/2/2016	6,421,295	\$60.14	0.32%		\$1.92	\$58.22	
11/3/2016	4,534,482	\$60.25	0.18%		\$1.92	\$58.33	
11/4/2016	5,966,842	\$58.62	-2.71%		\$1.92	\$56.70	
11/7/2016	5,216,600	\$60.21	2.71%		\$1.92	\$58.29	
11/8/2016	4,359,201	\$59.73	-0.80%		\$1.92	\$57.81	
11/9/2016	6,080,051	\$61.19	2.44%		\$1.92	\$59.27	
11/10/2016	3,459,121	\$61.87	1.11%		\$1.92	\$59.95	
11/11/2016	2,934,104	\$61.04	-1.34%		\$1.92	\$59.12	
11/14/2016	3,796,591	\$60.50	-0.88%		\$1.92	\$58.58	
11/15/2016	9,026,050	\$62.56	3.41%		\$1.92	\$60.64	
11/16/2016	3,305,642	\$61.94	-0.99%		\$1.92	\$60.02	
11/17/2016	3,862,440	\$61.45	-0.79%		\$1.92	\$59.53	
11/18/2016	3,659,752	\$61.51	0.10%		\$1.92	\$59.59	
11/21/2016	4,781,838	\$64.03	4.10%		\$1.92	\$62.11	
11/22/2016	4,510,467	\$64.05	0.03%		\$1.92	\$62.13	
11/23/2016	3,399,479	\$65.00	1.48%		\$1.92	\$63.08	
11/25/2016	2,425,416	\$63.75	-1.92%		\$1.92	\$61.83	
11/28/2016	4,091,864	\$62.00	-2.75%		\$1.92	\$60.08	
11/29/2016	6,681,775	\$60.16	-2.97%		\$1.92	\$58.24	
11/30/2016	15,639,234	\$69.15	14.94%		\$1.92	\$67.23	
12/1/2016	7,815,923	\$68.59	-0.81%		\$1.92	\$66.67	
12/2/2016	3,668,960	\$68.56	-0.04%		\$1.92	\$66.64	
12/5/2016	3,998,465	\$68.29	-0.39%		\$1.92	\$66.37	
12/6/2016	4,115,408	\$68.21	-0.12%		\$1.92	\$66.29	
12/7/2016	4,812,240	\$69.27	1.55%		\$1.92	\$67.35	
12/8/2016	3,800,278	\$70.26	1.43%		\$1.92	\$68.34	
12/9/2016	4,410,886	\$70.47	0.30%		\$1.92	\$68.55	
12/12/2016	4,777,631	\$70.79	0.53%		\$1.92	\$68.87	
12/13/2016	7,528,808	\$72.69	2.68%		\$1.92	\$70.77	
12/14/2016	5,383,092	\$70.68	-2.77%		\$1.92	\$68.76	
12/15/2016	5,138,152	\$70.33	-0.50%		\$1.92	\$68.41	
12/16/2016	8,414,775	\$70.61	0.40%		\$1.92	\$68.69	
12/19/2016	2,698,138	\$71.37	1.08%		\$1.92	\$69.45	
12/20/2016	4,520,957	\$70.97	-0.56%		\$1.92	\$69.05	
12/21/2016	2,430,865	\$70.75	-0.31%		\$1.92	\$68.83	
12/22/2016	2,730,567	\$70.77	0.03%		\$1.92	\$68.85	
12/23/2016	1,800,713	\$71.25	0.68%		\$1.92	\$69.33	
12/27/2016	1,875,931	\$71.54	0.41%		\$1.92	\$69.62	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
12/28/2016	2,095,761	\$70.64	-1.26%		\$1.92	\$68.72	
12/29/2016	2,338,145	\$70.11	-0.75%		\$1.92	\$68.19	
12/30/2016	2,447,251	\$69.73	-0.54%		\$1.92	\$67.81	
1/3/2017	3,980,018	\$70.25	0.75%		\$1.92	\$68.33	
1/4/2017	3,681,112	\$70.81	0.80%		\$1.92	\$68.89	
1/5/2017	3,872,800	\$71.61	1.13%		\$1.92	\$69.69	
1/6/2017	5,757,411	\$71.74	0.18%		\$1.92	\$69.82	
1/9/2017	4,167,751	\$69.98	-2.45%		\$1.92	\$68.06	
1/10/2017	4,141,560	\$69.58	-0.57%		\$1.92	\$67.66	
1/11/2017	3,383,900	\$71.60	2.90%		\$1.92	\$69.68	
1/12/2017	3,132,659	\$71.49	-0.15%		\$1.92	\$69.57	
1/13/2017	2,632,942	\$71.24	-0.35%		\$1.92	\$69.32	
1/17/2017	2,547,420	\$70.72	-0.73%		\$1.92	\$68.80	
1/18/2017	4,029,899	\$69.89	-1.17%		\$1.92	\$67.97	
1/19/2017	3,678,738	\$70.18	0.41%		\$1.92	\$68.26	
1/20/2017	3,351,432	\$70.03	-0.21%		\$1.92	\$68.11	
1/23/2017	2,592,341	\$69.86	-0.24%		\$1.92	\$67.94	
1/24/2017	3,449,795	\$71.18	1.89%		\$1.92	\$69.26	
1/25/2017	3,592,415	\$70.67	-0.72%		\$1.92	\$68.75	
1/26/2017	2,931,033	\$71.14	0.67%		\$1.92	\$69.22	
1/27/2017	2,474,135	\$70.01	-1.59%		\$1.92	\$68.09	
1/30/2017	4,463,010	\$68.83	-1.69%		\$1.92	\$66.91	
1/31/2017	5,373,847	\$69.53	1.02%		\$1.92	\$67.61	
2/1/2017	6,303,374	\$68.36	-1.68%		\$1.92	\$66.44	
2/2/2017	5,207,496	\$69.10	1.08%		\$1.92	\$67.18	
2/3/2017	4,969,330	\$70.40	1.88%		\$1.92	\$68.48	
2/6/2017	3,189,781	\$69.10	-1.85%		\$1.92	\$67.18	
2/7/2017	4,494,988	\$67.14	-2.84%		\$1.92	\$65.22	
2/8/2017	4,179,267	\$67.15	0.01%		\$1.92	\$65.23	
2/9/2017	2,824,156	\$68.42	1.89%		\$1.92	\$66.50	
2/10/2017	4,513,042	\$69.34	1.34%		\$1.92	\$67.42	
2/13/2017	3,069,435	\$68.14	-1.73%		\$1.92	\$66.22	
2/14/2017	4,310,342	\$68.33	0.28%		\$1.92	\$66.41	
2/15/2017	5,561,024	\$67.52	-1.19%		\$1.92	\$65.60	
2/16/2017	4,962,225	\$66.60	-1.36%		\$1.92	\$64.68	
2/17/2017	3,455,908	\$66.77	0.26%		\$1.92	\$64.85	
2/21/2017	3,858,068	\$67.21	0.66%		\$1.92	\$65.29	
2/22/2017	5,040,618	\$65.84	-2.04%		\$1.92	\$63.92	
2/23/2017	3,308,254	\$65.98	0.21%		\$1.92	\$64.06	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
2/24/2017	4,833,040	\$64.77	-1.83%		\$1.92	\$62.85	
2/27/2017	5,338,747	\$64.90	0.20%		\$1.92	\$62.98	
2/28/2017	4,246,035	\$64.65	-0.39%		\$1.92	\$62.73	
3/1/2017	3,908,441	\$66.02	2.12%		\$1.92	\$64.10	
3/2/2017	4,619,255	\$64.09	-2.92%		\$1.92	\$62.17	
3/3/2017	7,090,806	\$63.21	-1.37%		\$1.92	\$61.29	
3/6/2017	4,957,626	\$63.25	0.14%		\$1.92	\$61.33	
3/7/2017	4,934,796	\$63.16	-0.14%		\$1.92	\$61.24	
3/8/2017	7,999,335	\$61.40	-2.79%		\$1.92	\$59.48	
3/9/2017	5,747,687	\$61.94	0.88%		\$1.92	\$60.02	
3/10/2017	4,391,871	\$61.89	-0.08%		\$1.92	\$59.97	
3/13/2017	4,240,161	\$62.82	1.50%		\$1.92	\$60.90	
3/14/2017	4,491,997	\$61.81	-1.61%		\$1.92	\$59.89	
3/15/2017	5,356,386	\$64.08	3.67%		\$1.92	\$62.16	
3/16/2017	2,983,937	\$63.40	-1.06%		\$1.92	\$61.48	
3/17/2017	3,666,876	\$63.25	-0.24%		\$1.92	\$61.33	
3/20/2017	3,419,155	\$62.84	-0.65%		\$1.92	\$60.92	
3/21/2017	3,048,145	\$61.82	-1.62%		\$1.92	\$59.90	
3/22/2017	2,542,999	\$61.63	-0.31%		\$1.92	\$59.71	
3/23/2017	4,039,234	\$60.79	-1.36%		\$1.92	\$58.87	
3/24/2017	3,559,012	\$60.34	-0.74%		\$1.92	\$58.42	
3/27/2017	3,512,404	\$59.94	-0.66%		\$1.92	\$58.02	
3/28/2017	4,473,495	\$61.14	2.00%		\$1.92	\$59.22	
3/29/2017	3,912,196	\$62.45	2.14%		\$1.92	\$60.53	
3/30/2017	5,742,258	\$62.17	-0.45%		\$1.92	\$60.25	
3/31/2017	3,782,021	\$62.00	-0.27%		\$1.92	\$60.08	
4/3/2017	2,581,435	\$61.79	-0.34%		\$1.92	\$59.87	
4/4/2017	3,132,144	\$62.71	1.49%		\$1.92	\$60.79	
4/5/2017	6,442,906	\$62.85	0.22%		\$1.92	\$60.93	
4/6/2017	2,673,076	\$62.89	0.06%		\$1.92	\$60.97	
4/7/2017	2,205,071	\$62.43	-0.73%		\$1.92	\$60.51	
4/10/2017	2,239,403	\$62.89	0.74%		\$1.92	\$60.97	
4/11/2017	2,864,501	\$62.90	0.02%		\$1.92	\$60.98	
4/12/2017	2,470,750	\$62.54	-0.57%		\$1.92	\$60.62	
4/13/2017	4,660,881	\$61.09	-2.32%		\$1.92	\$59.17	
4/17/2017	3,240,193	\$61.21	0.20%		\$1.92	\$59.29	
4/18/2017	3,353,646	\$60.41	-1.31%		\$1.92	\$58.49	
4/19/2017	4,384,582	\$59.13	-2.12%		\$1.92	\$57.21	
4/20/2017	3,789,814	\$59.00	-0.22%		\$1.92	\$57.08	

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
4/21/2017	3,720,303	\$59.29	0.49%		\$1.92	\$57.37	
4/24/2017	3,273,916	\$59.37	0.13%		\$1.92	\$57.45	
4/25/2017	3,000,946	\$60.08	1.20%		\$1.92	\$58.16	
4/26/2017	2,744,976	\$59.96	-0.20%		\$1.92	\$58.04	
4/27/2017	14,106,206	\$57.12	-4.74%		\$1.92	\$55.20	
4/28/2017	5,059,768	\$57.02	-0.18%		\$1.92	\$55.10	
5/1/2017	4,931,206	\$56.67	-0.61%		\$1.92	\$54.75	
5/2/2017	5,537,330	\$56.28	-0.69%		\$1.92	\$54.36	
5/3/2017	22,118,227	\$51.95	-7.69%	(\$1.92)			\$51.95
5/4/2017	10,683,975	\$51.94	-0.02%				\$51.95
5/5/2017	6,212,357	\$52.59	1.25%				\$52.16
5/8/2017	6,541,036	\$52.31	-0.53%				\$52.20
5/9/2017	7,827,546	\$51.33	-1.87%				\$52.02
5/10/2017	9,138,311	\$52.08	1.46%				\$52.03
5/11/2017	6,033,875	\$51.54	-1.04%				\$51.96
5/12/2017	4,203,349	\$51.63	0.17%				\$51.92
5/15/2017	5,220,757	\$51.88	0.48%				\$51.92
5/16/2017	5,155,648	\$51.75	-0.25%				\$51.90
5/17/2017	4,863,891	\$51.74	-0.02%				\$51.89
5/18/2017	5,418,926	\$52.08	0.66%				\$51.90
5/19/2017	5,718,723	\$53.30	2.34%				\$52.01
5/22/2017	4,709,380	\$53.35	0.09%				\$52.11
5/23/2017	4,333,718	\$53.57	0.41%				\$52.20
5/24/2017	3,426,415	\$53.35	-0.41%				\$52.27
5/25/2017	3,950,922	\$52.07	-2.40%				\$52.26
5/26/2017	6,205,533	\$51.84	-0.44%				\$52.24
5/30/2017	5,087,772	\$50.77	-2.06%				\$52.16
5/31/2017	5,511,905	\$50.53	-0.47%				\$52.08
6/1/2017	3,491,845	\$51.11	1.15%				\$52.03
6/2/2017	5,038,504	\$50.06	-2.05%				\$51.94
6/5/2017	4,163,334	\$49.64	-0.84%				\$51.84
6/6/2017	4,523,232	\$50.10	0.93%				\$51.77
6/7/2017	8,372,055	\$47.17	-5.85%				\$51.59
6/8/2017	5,174,624	\$46.63	-1.14%				\$51.40
6/9/2017	4,109,360	\$47.98	2.90%				\$51.27
6/12/2017	5,192,962	\$48.30	0.77%				\$51.16
6/13/2017	5,173,666	\$49.22	1.90%				\$51.10
6/14/2017	6,475,785	\$47.28	-3.94%				\$50.97
6/15/2017	5,321,165	\$46.11	-2.47%				\$50.81

**Anadarko Securities Litigation****Analysis of Inflation**

Date	Reported Volume	Closing Price	Returns	\$ Impact	Inflation per Share (1)	Implied Value	90-Day Moving Average
6/16/2017	5,662,430	\$47.04	2.02%				\$50.70
6/19/2017	4,175,658	\$46.70	-0.72%				\$50.57
6/20/2017	5,489,512	\$46.29	-0.88%				\$50.45
6/21/2017	5,060,224	\$45.35	-2.03%				\$50.30
6/22/2017	4,792,878	\$45.09	-0.57%				\$50.16
6/23/2017	5,413,190	\$45.50	0.91%				\$50.03
6/26/2017	4,575,500	\$44.92	-1.27%				\$49.90
6/27/2017	8,645,807	\$43.80	-2.49%				\$49.74
6/28/2017	7,134,650	\$43.79	-0.02%				\$49.59
6/29/2017	8,356,850	\$45.25	3.33%				\$49.49
6/30/2017	5,344,694	\$45.34	0.20%				\$49.39
7/3/2017	2,547,926	\$46.10	1.68%				\$49.31
7/5/2017	4,126,722	\$44.81	-2.80%				\$49.21
7/6/2017	7,640,657	\$43.62	-2.66%				\$49.08
7/7/2017	4,923,852	\$43.36	-0.60%				\$48.96
7/10/2017	3,487,592	\$43.59	0.53%				\$48.85
7/11/2017	4,063,857	\$43.64	0.11%				\$48.74
7/12/2017	4,783,207	\$43.82	0.41%				\$48.64
7/13/2017	4,482,902	\$44.45	1.44%				\$48.55
7/14/2017	4,911,791	\$44.73	0.63%				\$48.48
7/17/2017	4,900,159	\$45.22	1.10%				\$48.42
7/18/2017	5,071,740	\$43.77	-3.21%				\$48.33
7/19/2017	6,986,454	\$44.91	2.60%				\$48.26
7/20/2017	5,833,314	\$43.84	-2.38%				\$48.18
7/21/2017	5,891,229	\$44.06	0.50%				\$48.11
7/24/2017	5,152,929	\$44.21	0.34%				\$48.04
7/25/2017	8,885,515	\$45.72	3.42%				\$48.00
7/26/2017	5,164,592	\$45.17	-1.20%				\$47.95
7/27/2017	7,007,516	\$47.32	4.76%				\$47.94
7/28/2017	5,827,119	\$46.32	-2.11%				\$47.92
7/31/2017	4,135,667	\$45.67	-1.40%				\$47.88

(1) Inflation adjusted for announcement that working interest was increased from 30% to 33%

Assumes liability starts on February 21, 2015